GLEANINGS IN BEE CULTURE

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EDITORIAL

By E. R. ROOT.

OUR cellar-wintered colonies were set out the last part of April. They are not so far advanced as the outdoor bees of the same strength last fall. They reared but very little brood, while the outdoor bees reared considerable. In most of our hives the force is made up largely of young bees hatched during the last few days.

SOME SPRING DWINDLING REPORTED.

THE late spring, with its cold backward weather clear up into May, has held the bees back somewhat in some sections. At Medina we find ours in fine condition; but a week or ten days ago we were fearful that if this chilly weather continued there might be heavy losses; but the nice weather has come just in the nick of time, and bees are booming on fruit bloom.

CONTROLLING BEE RANGE IN HAWAII.

ELSEWHERE we give a report from a government bulletin showing how the bee-keepers of Hawaii control their bee-ranges. This question has been discussed pro and con, but it seems to be difficult in this country to control the nectar within the range of one's bees so that no one else can occupy the same territory. But in Hawaii it is an accomplished fact; but conditions there are peculiar, in that it is possible for a bee-owner to buy his range.

FOUL-BROOD INSPECTORS FOR INDIANA.

MR. Geo. S. DeMuth, of Peru, Ind., has been appointed by the State Entomologist, Douglass, as deputy inspector for bee diseases under the new law. Mr. DeMuth has charge of the work in Biology at the Peru High School. He has had quite an extensive experience in bee culture, and last year from two hundred colonies he secured five tons of honey. He is certainly well equipped for the work, and the Indiana bee-keepers are to be congratulated on having such men as Douglass and DeMuth to look after foul brood in their State. We may rest assured that the work will be well done.

ALEXANDER'S BOOK NOW READY FOR DELIVERY.

We are now filling all back orders. The regular price of the book is 50 cents; but it will not be sold except in connection with a subscription to GLEANINGS. One dollar in advance, from either new or old subscribers, will entitle one to a year's subscription and the Alexander book, provided he asks for it; but in the case of old subscribers all arrearages, if any, must be paid, plus $1.00 in advance for the next year's subscription. The book contains 100 pages the size of this. It gives the secrets of Mr. Alexander's great success as a bee-keeper. Every subscriber should have it for handy reference.

CHEAP GLUCOSE SYRUP.

THE following editorial in the last issue of the *Rural New-Yorker*, edited by H W. Collingwood, contains so much truth that we are glad to place it before our readers:

We often see farmers buying cans of cheap syrup at the stores. Much of this is glucose — a poor sweet, dull and heavy in taste. It costs more than it is worth, and is not to be compared with honey. A few colonies of bees on the farm would, if cared for, provide an abundance of honey with some surplus to sell. It seems like a shame to buy this cheap and expensive glucose when the country is alive with flowers only waiting for the bees to come and gather honey. The honey crop is about the only one which takes no plant-food away from the farm. There is no more wholesome sweet for children. If there is any argument against bee-keeping except the fear of being stung, we do not know what it is.

Strange it is that farmers who have plenty of bee-range on their farms will go to the stores and buy some of this glucose when they could just as well raise some of the finest sweet that the world affords, at comparatively little expense. The children and women-folks could easily handle half a dozen colonies, and, what is more, have a world of pleasure and a little profit besides.

THOSE DAGOS WITH STILETTOS.

SOME of the letters we get through the mails from some people, unsophisticated in the mysteries of the hive, are exceedingly interesting, not to say funny. Recently we received a letter from an old friend, a cousin, who has got into trouble, and would appreciate some good advice. His letter is too good to keep from the public, and so we give it here without the "advice."

Friend Ernest:—I have recently become the unwilling owner of four colonies of bees — orphan bees — heartlessly deserted by their owner, a former tenant of my new country home. These bees occupy a commanding position near the barn, and it will be absolutely necessary for me to visit the barn within a few days without waiting until after dark. From what I can see of the bees through an opera-glass, they seem to be well housed, but, from the large numbers on the outside, somewhat discontented. I do not know what nationality they are; but from their industrious habits, and the fact that they all carry a stiletto about their person, I take them to be Dagos. Thinking that they might be thirsty, I gave them a pail of water last midnight, but they do not seem to care much for it.

I remember that, when I was a boy in Medina, bees used to feed on dandelions, clover, and my mother's preserves; but as these are all out of the market at present I tried them on a bale of hay and a pan of oats; but they do not seem to be satisfied.

Can you advise me what to do to make them more contented so I can take possession of my place in peace? Elizabeth has been reading back numbers of GLEANINGS, and says that if I get her a coat of mail and one of your automatic self-cocking smoke-guns she will be willing to tackle them some dark night. I do not know what I shall do with them; but if I do not succeed in apprehending the owner soon, I think I will build a sun parlor over them and open a sanitarium for the cure of rheumatism. My family have an idea that in some way we might rob them of a piece of honey now and then without endangering our lives. If this is possible, please give me particulars. Any information or advice you can give me as to how to keep or get rid of these bees will be thankfully received. I should also be pleased to have you give me the name of the best antidote for bee-stings providing you live in a dry neighborhood. L. S. SMITH.
Cleveland, Ohio.

TWO NOTABLE ARTICLES IN THIS ISSUE; SWARM CONTROL AND HOW TO DIAGNOSE THE CONDITION OF A COLONY AT THE ENTRANCE.

BEGINNERS should not fail to read the article by Dr. C. C. Miller on the control of swarming, and the one by E. D. Townsend on buying bees. The former goes into minute details showing how Dr. Miller has been able to keep swarming down, and at the same time produce such an enormous crop of honey as he did last year; for it must be remembered that his yield in 1908 was something remarkable. We believe that even some of the veterans will do well to sit at the feet of this Gamaliel occasionally.

The article by Mr. Townsend touches on the very important matter of *how* to buy bees. He shows how it is possible to determine from the entrance, to a great extent, whether the colony is queenless, whether it is strong, whether, in fact, it is such a colony one can afford to buy at the price asked. To be able to diagnose the internal condition of a colony by surface or entrance indications is a very important trick of the trade. While such diagnoses are not always reliable, they help one tremendously when the time is short at an outyard, to relieve distress of colonies most in need of help, without the necessity of opening up all the hives in a yard. Then when one has more leisure he can go through the hives to make such changes as the entrance diagnosis at an earlier time did not show the need of.

MORE HELP FROM UNCLE SAM IN COMBATING BEE DISEASES.

THE Bureau of Entomology of the United States Department of Agriculture expects, during the present season, to enlarge the work on bee diseases somewhat, and the main work this season will be to determine the distribution of the two contagious bee diseases in the United States. The information thus gained will be used in helping to combat the diseases by the dissemination of literature giving the symptoms and treatment. At present, disease is found in many localities unknown to even fairly progressive bee-keepers, and it is the desire of the Bureau of Entomology to help the bee-keepers to find out about these diseases. The chief value of this work is that the information so gained may be given to State legislatures that have foul-brood bills up for consideration. If a list of the localities where diseases occur can be given to the men fathering the bill it will be the strongest argument which can be presented. State legislatures have a right to know how great is the need for such laws; and if statements of this kind from the United States Department of Agriculture can be given them it will aid greatly in showing the legislators the vital need of legislation to the bee industry. The fact that all of these samples are subjected to a careful bacteriological examination adds greatly to the weight of the evidence, for it will not be based on hearsay but on uncontrovertible facts.

We learn from the Bureau that the results of these examinations will be sent promptly to the persons sending the samples, and the Bureau will not publish the names of those sending in samples. This plan is to be followed because many persons consider it something of a disgrace to have foul brood in their yards. The Bureau will, however, give the information out by counties when it will help the cause of bee-keeping, and by townships if especially requested to do so.

Several hundred samples have been examined by the Bureau during the past two years since work on this subject was begun, and now the Bureau is ready to examine samples from all over the country. The results will be sent out promptly; but it will probably take several days to make the bacteriological examination. Perhaps many will think that this can be done by a microscopic examination; but, as Dr. White has pointed ont in several of his papers, microscopic examination is of little value, and it is necessary to make cultures to be sure as to what bacteria are present.

Of course a bee-keeper who has had experience with American foul brood can tell it as soon as he sees it; but in the case of European foul brood this is frequently not the case, and a bacteriological examination is necessary. At any rate you can send your samples to the Bureau of Entomology, Washington, D. C., and be sure as to what the trouble is, provided the sample is of either of the two contagious diseases.

In this connection we would warn our readers that it is not wise to send samples through the mails in pasteboard boxes. We get samples almost every week that are broken and partially unwrapped. This is dangerous, because the mail may be exposed where bees can get at it. We do not care to endanger our own bees by receiving such samples, and no doubt the Bureau of Entomology is also as anxious to keep out disease. Send your samples in a strong tin or wooden box, carefully wrapped. *Under no circumstances should honey be sent* in any such combs, as it is almost sure to leak, and is of no value in the examination.

Dr. Phillips writes that the Bureau will send a strong box on application, and also a frank, so that the sample will require no postage. We hope that bee-keepers all over the country will co-operate with the Bureau of Entomology in this work, and simply flood them with samples.

The Bureau of Entomology has recently issued a list of publications on bee-keeping which are available; and if any of our readers do not know what the Bureau is doing we suggest that they send for this list.

AN EXCELLENT FOUL-BROOD LAW FOR IOWA.

IT is very gratifying to learn that Iowa is the twenty-first State to fall into line by the enactment of an excellent foul-brood law. A State inspector will be appointed soon.

Mr. Edward G Brown, Secretary of the Western Honey Producers, with headquarters at Sioux City, Iowa, writes that the Iowa bee-keepers are greatly indebted to Mr. N. E. France, General Manager of the National Bee-keepers' Association, and Dr. E. F. Phillips, of the Bureau of Entomology, for assistance in securing the passage of this bill. He also desires to thank the editors the *American Bee Journal* and GLEANINGS in securing the co-operation of the Iowa bee-keepers.

The Iowa law is a model of brevity and effectiveness. As it is so short we take pleasure in giving the full text of it here.

SECTION 1. The Governor is hereby authorized to appoint a competent man as inspector of bees, who shall hold his office for a term of two years, or until his successor is appointed and qualified; and said inspector shall have the power to appoint deputies.

SEC. 2. It shall be the duty of such inspector, when notified in writing, by at least three bee-keepers of any locality, of the existence, or supposed existence, of the disease known as "foul brood" among the apiaries of such locality, to examine at once thoroughly such apiaries as are reported to be diseased, and all other apiaries in the same locality, and thus ascertain whether such disease exists.

If the bees in any apiary are in such place or condition as to prevent a thorough examination by the inspector, he may order the same to be put into proper place or condition for such examination. If such order is not complied with, and the inspector has reason to believe such bees are diseased, he may cause them to be destroyed. If upon examination the inspector is satisfied of such disease, he shall give the owner or person in charge of such apiary full instructions as to the manner of treating the same. Within reasonable time after such examination the inspector shall, without other notice, make further examination of such apiaries; and if the condition of any of them is such as, in his judgment, renders it necessary, he may burn, or cause to be burned, all the infected colonies of bees in any apiary, together with all the combs and hives in order to prevent the further spread of the disease.

SEC. 3. The inspector shall make a yearly report to the Governor, stating the number of apiaries visited, the number of those diseased and treated, and the number of colonies of bees destroyed. Such report shall also show the expenses incurred by the inspector while in the discharge of his duties under the provisions of this act.

SEC. 4. Any one who knowingly sells, barters, or gives away, moves, or allows to be moved, a diseased colony or colonies of bees, be they queen or workers, or infected appliances, or who exposes any infected honey to the bees without the consent of the inspector, shall be deemed guilty of a misdemeanor, and be liable on conviction before any justice of the county to a fine of not less than twenty-five nor more than one hundred dollars or to imprisonment in the county jail not exceeding thirty days, or both fine and imprisonment.

SEC. 5. Any person whose bees have been destroyed or treated for "foul brood," who sells or offers for sale any bees, hives, or appurtenances, after such destruction or treatment, without being authorized by the inspector to do so, or expose in his apiary or elsewhere any infected honey or other infected thing, or conceal the fact that said disease exists, shall be deemed guilty of a misdemeanor, and on conviction thereof shall be liable to a fine of not less than twenty-five nor more than fifty dollars, or imprisonment in the county jail not exceeding thirty days.

SEC. 6. Any owner or possessor of bees who disobeys the directions of the inspector, offers resistance, or obstructs said inspector in the performance of his duties, shall be deemed guilty of a misdemeanor, and upon conviction thereof before any justice of the peace of the county shall be fined not exceeding the sum of fifty dollars, or by imprisonment in the county jail not exceeding thirty days.

SEC. 7. Such inspector shall receive as compensation the sum of three dollars per day for each day actually and necessarily employed in the discharge of the duties as herein provided, together with his expenses actually incurred while so employed, provided that the amount paid on account of such expenses shall in no event exceed the sum of one thousand dollars for any one year, *including salary and expenses of deputies.

BEE-KEEPING IN HAWAII; HOW THE BEE-KEEPERS THERE CONTROL THEIR BEE-RANGES.

WE have before stated editorially that bee-keeping in that group of islands in the Pacific is a very important industry, and hoped to have some interesting facts later to present to our readers. Dr. E. F. Phillips, of the Bureau of Entomology, in charge of apiculture, Washington, D. C., made a trip to the islands something over a year ago. Since returning he has prepared a bulletin, No. 75, part 5, entitled "A Brief Survey of Hawaiian Bee-keeping.* This is an exceedingly interesting contribution, and the facts are so new and valuable that we can do no better than make some extended extracts. After going on to state that bee-keeping on the islands is one of the minor industries which is conducted with a profit, and the further fact that this business can never become a leading industry there, he goes on to tell how the business is carried on.

At the present time bee-keeping is largely in the hands of four corporations, they owning and operating at least four-fifths of all the bees on the island. These companies are all managed by American citizens, but there are a number of smaller apiaries, some of which are owned by Japanese. The last-named apiaries are usually not so well kept nor are they so productive. The total number of colonies at present is probably about 20,000, and the annual output of honey, which is mostly shipped to the mainland or to Europe, is probably about 600 tons. The keeping of bees by corporations, as opposed to individual ownership, is something which is rarely observed elsewhere. As they are located a considerable distance from the market, and as the expense of supplies and shipping is high, it has seemed desirable to the bee-keepers to organize companies so that they may make large shipments. There is also on the Hawaiian Islands a tendency, to a marked degree, to incorporate all industries, and doubtless the prevalence of this method of conducting business has induced the bee-keepers to adopt it also. With this system it is possible for one skilled manager to oversee the manipulation of several thousand colonies, the actual manipulation being done in most cases by the Japanese helpers; in this way the cost of maintenance of the apiaries is reduced very considerably. Since the price obtained for Hawaiian honey is still rather low, it is of course necessary to reduce expense in every way possible.

"BEE RIGHTS."

The buying of "bee rights," as it is practiced in Hawaii, is something practically unheard of elsewhere, and would certainly appear to a mainland bee-keeper as a new and strange procedure. The nearest approach to it is the renting of locations for outyards, which can not usually insure no competition. This practice would not be possible were it not for the fact that most of the available agricultural land on the islands is held in large tracts, mostly as sugar-cane plantations and ranches. Arrangements are made with the manager of a plantation for locations for apiaries, and the bee-keeper agrees to pay a certain amount for the use of the land and for the honey removed from these apiaries. Frequently this is in the form of an agreement to pay a certain sum for each ton of honey removed from the plantation, but at times it is a fixed sum for the year, the bee-keeper assuming what small risk there is of not getting a crop. The plantation management in turn agrees to allow no other bee-keepers to keep bees in its territory. There are frequently small holdings within the boundaries of the plantation over which the plantation company has no control, and some other bee-keeper may lease these with the idea of allowing his bees to range over the entire plantation. If, for example, he puts 200 colonies on such a holding, the immediate placing of say 500 colonies just across the line has a discouraging effect on this poaching, and it can end in only one way, since the bee-keeper who has a right there has the advantage. The same thing happens when an outside bee-keeper gets too close to the boundary line.

Naturally, when land is divided into smaller holdings, as is the case almost everywhere on the mainland, such an arrangement is not possible and a bee-keeper must run the risk of competition. There is no way of telling what amount of honey is taken from any given area when the tracts are small. The moral right of priority claim, which so many bee-keepers advocate, has small place in the manipulations of territory in Hawaii, where the bee-keeping companies pay for what they get and insist on getting it. One of the large companies gains its exclusive right by reason of the fact that it owns and leases a tract of over 100,000 acres for ranch purposes.

EXTENT OF THE INDUSTRY.

At the present time there are on the islands probably about 20,000 colonies of bees, most of which are, as above stated, owned by four companies. From the custom-house statistics it is shown that the annual shipments of honey amount to about 1000 tons. The island of Kauai now supports about 3000 colonies, and, after traveling over almost the entire cultivated portion of the island, the author is of the opinion that the island is just about half stocked. The island of Oahu seems to be well

*This can be obtained from the Superintendent of Documents on the payment of 15 cents. Stamps will not be taken.

covered from an apicultural standpoint. Molokai is not a cane-producing island, but the algarroba forest is nearly stocked, and the only place for heavy expansion seems to be in the mountains, where several forest trees are nectar-bearing. The island of Maui could not be examined as carefully as the others on account of inclement weather, but from reports received it is obviously not stocked to the extent that it should be. The island of Hawaii, the largest of the group, is relatively the least developed of any of the islands. There are only a few apiaries on this area, which is almost equal in extent to Connecticut, and there are great possibilities. On the south coast there are vast areas of cane, and the same is true of the Hamakua coast on the north. The Kona coast would probably support some bees in the coffee plantations. One such apiary was seen by the author. On the interior of the island there are vast areas which are entirely undeveloped from an apicultural standpoint, and the island can doubtless support thousands of colonies of bees at a profit.

The total area now actually stocked with apiaries would not nearly equal in size one-half the State of Rhode Island, while the honey crop is probably 20 times as great as in that State. According to the census report for Rhode Island it would be 40 times as great, but we can not use this figure on account of its obvious unreliability. This comparison will show the honey-producing capabilities of the islands as compared with our more northern countries, and will also show how thoroughly the areas are stocked where the industry has been taken up. A small part of Oahu is doubtless overstocked, due to crowding into a given area by competitive companies. There was no evidence of such overstocking elsewhere.

Overstocking an area with bees is a subject much discussed among bee-men, and the situation in Hawaii illustrates very beautifully the fact that a theoretical discussion of how many colonies may be kept in one place is of no value whatever. Each location must be judged on its own merits, and a given area which will support only 20 colonies in one region may support 1000 elsewhere. It is also obvious that seasons vary to a marked degree. In many parts of the mainland it is deemed advisable to keep not more than 100 colonies in one apiary, and to allow each apiary a radius of 1½ to 3 miles. On the basis of these figures, from 50 to 200 acres are necessary to support a single colony of bees. Without discussing the merits of these figures, it is enough to say that this is the common mainland practice, particularly in the more densely populated areas. In contrast to this, an examination of the methods in Hawaii is extremely significant. One area of cane on the island of Oahu contains a little over 20,000 acres. As will be discussed later, this is not all equally productive from a bee-keeping standpoint. Near this is some algarroba forest, but not enough to influence the crop very much. This area supports nearly 5000 colonies, some of which yield exceptionally large crops. In certain parts of this area competition is too strong to yield proper results, but some apiaries yield over 200 pounds to the colony. In some other cane areas this record can be almost equaled. Algarroba will not produce so much per acre, but this is partly due to the fact that it blooms for less than six months, while cane-fields furnish honey-dew every day in the year. One strip of algarroba forest on Molokai supports nearly 2000 colonies. It will not average more than one-half mile in width, and about 30 miles of it is used for bees.

SOURCES OF HONEY.

The amount of floral honey produced on the islands annually is about 200 tons. Formerly the only source of honey on the islands which was widely enough distributed to make bee-keeping commercially important was algarroba, native "keawe." This tree was introduced into the islands by Father Bachelot, founder of the Roman Catholic mission, in 1837, and the original tree still stands on Fort Street, in Honolulu. It has been carried to all the islands, and is one of the most valuable plants ever brought into the group. It furnishes not only an excellent honey, but the pods afford excellent fodder, and the wood is the main source of fuel.

The honey from algarroba is "water white" in color, and granulates very soon after it is stored by the bees in spite of the warm climate of the islands. This characteristic makes frequent extractions necessary to prevent the combs from being clogged. In regions where algarroba is practically the only source of honey, at the close of the flow an amount of honey sufficient to keep up the colony until the next flow is left in the hive. This, of course, soon granulates. When the honey-flow diminishes, the brood-chamber is reduced and considerable honey is stored in the space formerly occupied by brood. When the next flow comes on, a good deal of this granulated honey remains in the combs; and since this can not be extracted, these combs are removed and replaced either by empty combs or by foundation, to give the queen more room. These combs containing granulated honey are then placed in huge solar extractors, the largest that the author had ever seen. With 200 or more colonies in an apiary, there is often need for a solar extractor which will hold several hundred combs at a time, and practically every apiary visited by the author had such a piece of apparatus as part of the equipment. The sun's heat liquefies the honey and melts most of the wax, and the wax from the "slumgum" is then extracted by the usual methods. The honey from these solar extractors is not darkened, as one would expect.

The algarroba-tree (*Prosopis juliflora*) is either the same species as or very closely related to the mesquite of the Southwest. On the islands it grows to the size of a tree, as is also the case in Mexico. In Texas it is generally very much smaller. In 1908 the tree came into bloom about the first of March, the time varying considerably in different localities on the islands. It usually blooms until August, and this very long blooming period adds greatly to its value to the bee-keepers.

OTHER SOURCES OF HONEY.

Insect honey-dew.—Hawaii is peculiar in that mostof the honey produced is from some source other than flowers. Two-thirds of the honey shipped annually from the islands is largely or entirely honey-dew honey. By far the greater part of this comes from the exudations of the sugar-cane leaf-hopper (*Perkinsiella saccharicida* Kirk.), and possibly some of it from the sugar-cane aphis (*Aphis sacchari* Zehnt.), although while on the islands the author observed none of the latter species. Of course, in a tropical country there are many other insects producing more or less honey-dew. The young "plant cane" is most abundantly covered with leaf-hoppers.

Honey-dew from the sugar-cane leaf-hopper is very dark amber in color and slightly ropy. In flavor it very strongly resembles molasses from the cane juice. Since the color and flavor are so marked, a small amount of this when mixed with the mild, light-colored algarroba honey imparts the color and flavor of honey-dew to the entire amount. Most honey-dew honeys on the mainland granulate very rapidly, but this type does not granulate at all. Samples several years old are as clear as when first extracted.

The chemical composition of Hawaiian honey-dew honey is quite unlike that of floral honey, and this fact has led to the charge of adulteration by buyers on the mainland and in foreign markets. Since nowhere else, so far as the author is aware, is honey-dew honey produced in such large quantities, it is not strange that cursory examinations were misleading. The author saw enough while on the islands to convince him that, however unlike floral honey this product may be, it is a natural sweet product collected and stored by the bee, and is then extracted and shipped with no additions of other sugars.

When the food and drugs act of 1906 went into effect the Hawaiian Bee-keepers' Association sent a representative to Washington to find out under what name they could market their crop, since it does not conform to the standard of the Association of Official Agricultural Chemists. They were informed that it could be sold on the mainland market provided it were labeled just what it is. This the Hawaiian bee-keepers have done, and it is now sold as "honey-dew honey." The bee-keepers of Hawaii fully realize the peculiar honey with which they have to deal, and are not attempting to market honey-dew honey in competition with floral honey for table use. It goes to the baking trade, and for such use is reported to be satisfactory; at any rate, the price received is equal to that received for algarroba honey.

In view of the fact that honey-dew honey has the taste and color of common molasses, it has been suggested that probably this product is gathered by the bees from the sugar-mills which are so numerous on the islands. The writer visited several such mills located near apiaries, on days when bees were actively flying. No bees were to be seen anywhere around the mill. If bees actually did come to the mill after sweets, they would become a serious nuisance to the workmen. Why they do not is something of a mystery to the writer, but he can vouch for the fact that he saw no mills screened to keep bees out, nor did he see any bees at work in the mill or even on the pile of sweet refuse ("mud cake") outside.

It may not be known that a very superior quality of wax is produced in Hawaii. It is light in color, and answers in all respects to the United States standard. On account of the cheapness of the Hawaiian honey, there seems to be a possibility that the business of wax production—that is, converting cheap honey into a product that has a good market and good prices—will come to be quite a side line among the bee-men on the island. Some experiments are now being conducted to see if it can not be put on a commercial basis.

There are no bee diseases on the island, and the bee-keepers there are, of course, very anxious that none be imported. On Sept. 12, 1908, the Board of Commissioners of Agriculture and Forestry of the Territory of Hawaii passed regulations to restrict the importation of honey-bees and honey. They may be imported, but must be inspected before they are delivered to the bee-keepers of the island.

STRAY STRAWS

By Dr. C. C. Miller, Marengo, Ill.

Mr. Crane's shipping-case has the advantage that no tricky bee-keeper will be tempted to veneer when packing.

R. F. Holtermann, the only further detail I can give you, p. 264, is that I have had very weak queenless nuclei build worker comb. Try it.

Feed no meal " after natural pollen comes in," p. 259. Right. I've fed bushels of meal, and my bees would never take it after the coming of natural pollen.

Gaston Bonnier dusted with talc the bees on a narrow strip of buckwheat for a rod in length. Next day, and days following, the white bees were found on that rod and nowhere else.

An old bee, I've been taught to believe, continues to go afield till it dies. Gaston Bonnier says that, when too old to go afield, it remains in the hive as a brooder, just to keep up heat in the brood-nest.

"The codling-moth lays its eggs in the bark of the trees," p. 261. In Journal of Economic Entomology, p. 136, it is said, "Observation has shown that the eggs are laid on all parts of the foliage." I think that word "foliage" comprehends also the young fruits.

E. D Townsend uses medium brood foundation, as the light brood sags with horizontal wiring, p. 281. It might be greater economy to use light brood with foundation splints. Also that would allow the foundation to go clear down to the bottom-bars.

J. E. Crane's figures, p. 230, are interesting. The moral is, to feed in hot weather. If you must feed late, feed hot; also make feed thick. But then comes the question whether thick syrup will be chemically changed by the bees so as to make good winter stores.

"I think I'll use the double-tier case hereafter, if it doesn't cost too much more for the single tier," page 224. Please change that "for" to "than," and it'll give what I meant to say. But may be both single and double tier cases of wood are to be knocked out.

When a swarm settles in an inconvenient spot, Franz Ebster (*Deutsche Imker*, 184), takes a sponge or rag saturated with carbolic acid on the end of a pole, puts it close to the swarm, and they leave to settle elsewhere. If a swarm is sparsely scattered along a limb, the carbolic held at one side will drive the stragglers into a compact cluster.

The question has been asked, "If by shaking or disagreeable odor you dislodge or drive a swarm from its place, will not the swarms sometimes take French leave?" I think not. In its then demoralized condition the swarm is in no mood to start on a journey, but must settle again in a compact cluster before it will start off, even if you keep driving it around all day—at least that's what I think, but I don't know that I'm right. How is it?

Just now it is sickening to see how each different interest is beseeching Congress to revise the tariff upward whenever itself is concerned, and downward when it concerns the other fellow. Fact is, the people, headed by Taft, desire honest downward revision, and I don't believe bee-keepers as a class want to join the howlers for especial favors. Moreover, no amount of howling will do a particle of good unless some bee-keeper has a pull with Aldrich.

Quite right you are, Mr. Editor, page 224. The best time to drink is between meals, and not at meals. If you chew, chew, chew, long enough you'll not need to drink so much at meals to choke down your food. By the way, there's nothing so very new about this matter of thorough mastication. But Horace Fletcher deserves great credit for arousing attention to it. [Many have known these things a good while; but it is one of the things they know but do not practice. If they did they would live as long as Gladstone or even longer. If the simple directions in your short paragraph could be practiced by every one through life, how much suffering and interruption to business, and how much grief for lost ones, might be saved!—Ed.]

"During the season of laying, a body-guard attends the queen, lavishing their cares upon her, and this guard never leaves her." Thus a professor of entomology in one of his lectures, as reported in a foreign journal. I think it is the commonly accepted belief. The idea that the same group of bees accompanies the queen continuously is utterly wrong. I don't see how any one could believe it if he should watch a queen for 15 minutes in the busy season. Here's the way my bees act: If at any time a worker recognizes that the queen is near, she turns her head toward the queen. If the queen remains long enough in one place, a group of admirers gathers about her. But that same group of bees will never surround her again as long as she lives. At least you don't see the group accompanying her when she moves from the place; but another group will form about her on her next stop. Next time you see a queen scooting across a comb, watch if you can see any bunch keeping pace with her.

Wm. W. Case's figures, p. 234, show that on fancy white, at 16 cts., the deduction for commission, etc., was 1.128 cts. per lb. But commission was 5 per cent. At the usual ten per cent on that quantity, the deduction would be 1.89 cts., or practically 2 cts. per lb. Of course, distance makes a difference in freight. Generally it is safe to advise, "If you can get within 2 cts. of what the commission house can sell at, better sell at home. But when there is a shortage in your locality, so that honey is shipped from the city to your home market, then you should sell at home for more than your honey would bring in the city." [We wish to say amen to your last sentence. The fact is, bee-keepers very often ship their product to a distant market, and then that market will ship other honey to the town of that same producer. Every bee-keeper ought to have pride enough to keep foreign products from coming into his locality, providing, of course, he has enough honey to supply the local demand.—Ed.]

SIFTINGS.

By J. E. CRANE, MIDDLEBURY, VT.

On page 76, Feb. 1, Mr. Morrison speaks of honey bread selling in New York for 25 cents a loaf. Will he tell us how it is made? [See Gleanings from our Exchanges, elsewhere.—ED.]

Wesley Foster, page 77, Feb. 1, gives a timely caution about putting comb honey in glass. Some markets expect it; but it's a poor way unless it can be sold very soon.

Mr. Foster also calls attention to the use of very light tin cans for extracted honey. I wonder more of them are not broken. As it is, many of them are jammed out of shape, so that they are worthless for further use.

Bert Smith, page 89, Feb. 1, objects to having the water in winter run out at entrances, as it freezes and clogs the opening—a good reason for not using sealed covers. Where the winters are comparatively mild, there may be but little ice; but here in the extreme North, where it may be from one to three months before a thaw, there is great danger of the entrance getting clogged.

Mr. Editor, on page 91, Feb. 1, you advise, in moving colonies 100 yards, first to move them two miles away and then back to their new location. This seems like the captain who "marched his soldiers up a hill and then he marched them down again." A few years ago I had to move a hundred-colony yard some twenty rods after they had been flying for a month. I did so at once by setting some obstruction in front of each hive having bees, and I met with no serious loss. A few bees went back, alighting on stones or sticks where their hives had stood, but at night they seemed to return to their own hives.

On p. 86, Feb. 1, Virgil Weaver gives us some fine theories about prospective clover crops; but after watching the clover for fifty years I do not feel half so sure in advance as he does as to future crops. If his theories were all true I should not know how to account for my failure the past year. There appeared to be clover enough, but, alas! a dry season, or perhaps I should say a drouth, set in, cutting short my crop, while my neighbors only a few miles from me, where they had more rain, secured good crops. He seems to carry the idea that one year the clover comes from the seed and the next it produces a crop of flowers and honey, and later dies, either from old age or because it is too thick. The winters have little to do with it. Well, hereabouts we have more or less new plants every year, and some one and some two year-old plants; and when our summers are favorable we have flowers providing they have not been winter-killed; but we do not always have honey in abundance, by any means. He says, page 87, that "white clover in a normal condition Dec. 1 is, nine times out of ten, still in a normal condition April 1, whether the winter has been wet or dry or a hot or cold one, the result is just about the same. How about the tenth time? We might guess that it was when there was an unusual amount of freezing and thawing, with cold dry winds that killed a large share of it. Some weeks ago I wrote an article on this subject; but after reading all that has been written it seems to me the subject has been very fully covered, especially by Mr. Doolittle, in the Feb. 1st and Feb. 15th numbers. It seems probable that differences in soil and climate make quite a difference. Thus Mr. Weaver, in Kentucky, finds the cause of clover dying to be drouth or old age, or because too thick. I notice winter grain is more generally grown south than in the extreme north, doubtless because it winters better. Mr. Doolittle finds it dies from winter-killing, and that he has never known it to be killed by drouth. My own experience is that severe drouth will kill clover, white clover especially, on dry, sandy, or gravelly or very compact clay soils. Dry winds in spring add to the injury done by freezing during the winter. The past winter in this section has been very favorable to clover, and we hope for a moderate crop of honey, even if only a small stand remains after the severe drouth of last autumn.

BEES NOT A NUISANCE EITHER IN OR OUT OF VILLAGE OR TOWN LIMITS.

Is it against the law of Ohio to keep bees, especially in the country, outside of the city limits? Can they be pronounced a nuisance? I have a few colonies, and a neighbor of mine told me Saturday that my bees were bothering his watering-trough.

G. N. BEITER.

Massillon, O., April 5.

[There is no law against keeping bees either outside or inside of a village or town limits. Indeed, there are a large number of precedents that go to show that no ordinance inside the limits can be passed, requiring the removal of any bees in any city or in any town in the United States, without being unconstitutional. This question has been tested out a number of times in the various courts of different States, and each time a verdict has been awarded in favor of the beekeeper and the bees.

If you will sprinkle a little weak carbolic acid along the edge of the trough which the bees are in the habit of visiting, you will keep them away. In addition to this, set out somewhere in the yard a large earthen vessel containing water slightly salted. On the surface of the water should be blocks of wood on which the bees may alight. It is because the bees can not get water near at hand that they will very often visit neighboring watering-troughs. In order to get the bees started visiting your water-jars it may be necessary to sweeten the water at the first time; then, afterward, slightly salt it, as the bees seem to prefer it that way.—ED.]

HOW TO AVOID THE LOSS OF QUEENS FROM COLONIES IN HOUSE-APIARIES.

If Minot C. Young, page 169, March 15, will place a wide board up against the alighting-board at queen-mating time, he will not lose one queen in fifty. I always do, and I never lose queens to amount to any thing from colonies in my sheds.

Marceline, Mo. IRVING LONG.

BEE-KEEPING IN THE SOUTHWEST

By Louis Scholl, New Braunfels, Tex.

"He who pursues two rabbits will succeed in catching neither" applies well in bee-keeping. And in this time of specialism is it not wise for the bee-keeper to specialize likewise? and is it not the only way to attain the very highest success possible in any line? We think so, for we have found it that way.

Second-hand cans are dear at any price. It does not pay to spend the extra labor on them in cleaning them up. They are to be dreaded as possible spreaders of foul brood, and, after all, many of them will not stand shipping honey in again, especially such long distances as we have here in the South and West. The risk is too great. Buy new ones.

It is high time that more of the bee-keepers study the bee diseases, especially foul brood. It is amazing to find how little the majority of the bee-keepers in the South know about it, just because they have never been troubled with it. Very few read any of the printed matter on this subject. But the time is coming when one must know as much about bee diseases as how to produce honey.

While the bees in Southwest Texas, south and west of San Antonio, have been rolling in surplus honey, their cousins in other parts of the State have had little if any thing to work on. It has been very dry, as a whole, all over the State, except in a very few localities, and prospects just now are any thing but flattering. In the mesquite territories outside of Southwest Texas, the early April bloom did not appear; hence there was no spring crop. It is hoped that a large crop will be harvested from the July mesquite bloom, which is generally good after a failure of the April bloom. The bees are mostly in good condition considering the long drouthy period that has prevailed.

"SHAKING" OR "CHANGING"

There, now, Dr. Miller, p. 190, April 1, you got things mixed up by not mixing them up enough; *i. e.*, when I refer to shaking up a colony and getting energy into it I mean any kind of manipulation that will stir up the bees. I consider the shaking they get when making the changes worth a good deal. Simply shaking the bees out of the hive and leaving every thing absolutely intact (a feat that would be rather difficult) will not work as well as tearing the colony all to pieces and giving the bees a thorough shaking-up while doing this. Neither will simply making the changes, without shaking the bees, give the desired effect. In other words, shaking without changing is about the same as changing without shaking. Each is better than doing nothing at all to the colonies, as it stimulates them just so much more; but to get the *most energy* into the bees, try shaking *with* changing. In moving bees to a new location, from ten to twenty miles or more, the bees are stirred up to greater activity in every instance. In this case no changing is done inside the hive. The same results can be obtained right in the yard, however, by shaking them up thoroughly. The energy of the bees can be increased to a greater extent, however, by giving them a good shaking every time their hives are manipulated, for some reason.

PROPER ARRANGEMENT OF HIVES.

From the numerous photographs of apiaries we notice that the hives are generally painted alike, and arranged in straight rows. From several seasons' experience I found it is no wonder that so many bee-keepers have great losses from queenless colonies. One of my apiaries was arranged by another party, and there were four rows ten feet apart, and the hives were four feet apart in the rows. In this yard there was no end of queenless colonies. It was what I expected, and I was opposed to that sort of arrangement of hives. Neither did the trouble end until we relocated the yard in a more suitable location where we could arrange the hives in groups of fives. Such a plan furnishes an ideal arrangement. It will be shown by pictures a little later.

A BEE-KEEPER'S CALENDER AND HONEY-PLANT LIST.

The Oklahoma Experiment Station has issued a bulletin, by W. R. Wright, which should be helpful as an aid to the bee-keepers of that new State. Other States should also issue bulletins more frequently on apiarian information. The main aim of this bulletin is to assist in selecting the most profitable time for stimulative feeding, which is deemed necessary five to six weeks before the main honey-flow, to secure the greatest honey harvest. With this in view, a list of the honey-plants and dates of blooming is given. Inside feeding of sugar syrup (half and half) is advised instead of outside feeding.

Sweet clover, sumac, wood-sage, smartweed (heartsease), apple, cherry, chittem wood, raspberry, blackberry, locust, white clover, alfalfa, and cotton follow in the order named as the main honey-producers.

FENCELESS APIARIES.

A large number of apiaries in Southwest Texas have no fence around them to ward off stock and cattle, although they are mostly located in cattle-ranges. As the land is cheap and ranges large, the pastures are not stocked so heavily with cattle that dangerous results might be feared from their depredations in the apiaries. On the other hand, the bee-keeper welcomes the few cattle that stray into his apiaries and keep down weeds and grass, saving him this labor.

Fences make the danger greater. First, if made of the much-used barbed wire, stock and cattle may become injured by running into it. Secondly, where the apiary is fenced, the grass will grow up in it, attract the stock, and cause trouble, while such would not be the case if th

grass is kept down by them. We fence all our apiaries with smooth wire, and then keep down the weeds and grass.

TRAITS OF THE HOLY LANDS.

W. H. Laws says this of the Holy Land bees: "This race of bees has some superior qualities. They are great breeders, fine honey-gatherers, not given to swarming, as many suppose, and build the straightest and nicest sheets of all-worker combs of any bees that I know. On the other hand, to offset their good traits they are a little irritable, and their comb honey is capped to show a watery appearance; but they are leaders where honey is to be had." Exactly as we have found them. The question with us was whether the extra stings that had to be borne, and the undesirable cappings, would be overbalanced by their good traits enough to justify keeping them. Our inclination has been against them for these reasons; yet we certainly like their fine comb-building, honey-gathering, and other get-up-and-get qualities.

THE TEXAS FOUL-BROOD APPROPRIATION.

This is hanging fire in the Legislature at this writing, April 16, and the bee-keepers are anxiously waiting for the results. It was lost in the House, but it was found by the members of the Legislative Committee of the Texas Bee-keepers' Association that there was one more chance to get it in the Senate appropriation bill, which has not yet come up for consideration. With hard work it is hoped that the Senate will include it, and that the House will pass favorably on it when it goes back to it.

This appropriation is needed most urgently, and it would be a pity if it should be lost now, at the very last moment. The writer has spent months of labor on it, assisted at times by F. L. Aten and T. P. Robinson, who, with the writer, compose the legislative committee of the State Bee-keepers' Association. W. O. Victor is also assisting in the work at present, and many others have aided by speaking or writing to different members of the legislature.

The appropriation is asked for by Prof. G. W. Herrick, State Entomologist at A. and M. College, in whose control the Texas foul-brood law rests. He asks, in addition to the appropriations for his department, $5000 for two years, or $2500 a year, to be used for the salary of a chief inspector and other expenses. This is inadequate, but it was deemed best not to ask too much and get nothing. As the territory in Texas is so great it requires a good deal more money than in other States

Later.—The Senate Finance Committee has passed favorably upon the appropriation, allowing the sum of $3000 for the first and $2000 for the second year, to be used for the suppression of foul brood. The House committee has promised to pass favorably upon it as presented by the former, and we are now quite certain about getting the money so badly needed. It becomes available on Sept. 1. Some inspection work is being done at present out of funds set aside for this purpose at A. and M. College, and it is hoped that this work can be kept up until the regular appropriation can be used.

GLEANINGS FROM OUR EXCHANGES

By W. K. MORRISON, MEDINA, O.

ALFALFA IN ROWS.

Growing alfalfa in rows is nothing new. As long ago as 1795, in a work published in Wilmington, Del., a Mr. John Spurrier advocated growing it in rows. The Spaniards often plant it so with good results. They also plant grass in that manner, and immediately after cutting it they hoe in between the rows. The effect is excellent, and they get great crops of grass such as are seldom or never seen on an American farm.

In answer to Mr. J. E. Crane, I would say there are many recipes for making honey bread. That sold in New York is probably "raised" by means of ammonia. Making honey bread in Europe is a trade. All the bakers seem to prefer buckwheat honey, though with us sage and tupelo would be even better. In this country baking-powder would probably answer the requirements. Honey bread is very light, and is considered excellent for invalids and persons of weak digestion. The new A B C has a recipe.

RATS VS. BEES.

In some places rats are very troublesome to bee-keepers. A friend of mine recently lost $500 worth of bee-supplies by rats gnawing into the crates. They destroyed all his extra hive-bodies, sections, frames, and fences. They like honey and gnaw at beeswax. In the West Indies they are held in check by the mongoose, which is a kind of ferret. Some have proclaimed the mongoose a nuisance, but the editor of the Journal of the Agricultural Society of Jamaica comes to its defense in this wise:

MONGOOSE.—We have often written that there is no plague of mongoose and never has been. It is a useful animal, and keeps rats in check; but it has been without reason blamed for almost every evil in Jamaica. If hens' eggs are scarce, it is the mongoose to blame; if pigeons are scarce, through a bad breeding season or over-shooting, it is the mongoose; because quails have been shot out for lack of preserving, it is the mongoose that is blamed. As a matter of fact, we are just as scarce of flying birds which seldom venture on the ground as we are of ground birds; and wherever lands have been shut up and no shooting allowed, there are plenty of quails and pigeons. Great Britain swarms with game, even though it is thickly peopled, and weasels and stoats abound—at any rate, are just as plentiful as mongoose are here. The estates here that boast of trapping hundreds of mongoose a year will, within a short time, require to fight plagues of rats, use poisons by the hundredweight, traps by the score, and spend several hundred dollars a year.

Really the mongoose is a friend of the birds because it can not climb the smallest tree, but it does kill rats that climb the tallest trees and wage incessant war on the birds by eating their eggs and young. Rats are dreaded by pineapple-growers and cacao-planters. They propagate with great rapidity in some tropical countries. They carry the virus of the bubonic plague so that the mongoose is a public benefactor.

NEW LANDS EXPOSITION.

The *Chicago Tribune* will have charge of an exposition devoted to the subject of our new lands, the intention being to show what crops are raised on them. This will be an eye-opener

for many home seekers. The enterprise is backed by a number of railways — the Burlington, Great Northern, Union Pacific, St. Paul, Florida East Coast, Northern Pacific, Santa Fe, and the Rock Island. Mr. Edmund T. Perkins, Engineer in Charge of U. S. Reclamation Service, is on the advisory committee, so that Uncle Sam will be represented. The exposition will be held in Chicago, November 27 to December 4, this year. The secretary is Robert P. Cross, 407 Commercial National Bank Building, Chicago, who will furnish details. It will be a big affair.

SUNFLOWERS FOR BEES.

The Ontario Agricultural College has made some very interesting experiments with sunflowers, that are worthy of emulation elsewhere. The average annual yield of Russian Mammoth, for a period of ten years, was 76.1 bushels; for White Beauty, 75.9; and for Black Giant, 69.1 per acre. For silage the average yield over a period of 13 years was, Black Giant, 6.0 tons of heads and 20 6 tons for the whole crop; Mammoth Russian, 5.7 tons of heads and 16.8 tons for whole crop; White Beauty, 5.8 tons of heads and 13.4 tons for whole crop. This report is certainly very encouraging to bee-keepers and poultrymen, as there are many States just as well suited to sunflowers as is Ontario. Farmer bee-keepers ought to think over this report. For bees the blossoms of sunflowers come at an opportune time. Any way, we feel quite grateful to the Ontario College for its report.

THE BEE FLORA OF AMERICA.

The writer is inclined to agree with Mr. Grant Stanley in the matter of publishing a work on the honey flora of North America It need not be so large as to preclude any one from carrying it around in his pocket. The revised edition of Gray's Flora of the United States is not so very large, and there is an edition in limp leather suitable for the pocket. A book on the honey *flora* would not be a third as large.

I have the complete flora of France, which slips into one's inside coat pocket easily. The honey-plants are marked in three degrees—fair, good, excellent. The honey flora of Spain, of which I have a copy, is excellent, and that, too, fits the pocket nicely. Mr. Scholl speaks of the honey-plants of Texas; but does not the Lone Star State have all the climates between sub-tropical and north temperate? The writer remembers very distinctly being in the panhandle of Texas when the thermometer registered 26 degrees below zero, Fahrenheit; at least we were told by the observer at Amarillo that it was so at one point. That gives an extensive flora, possibly half of that of the United States.

Here the United States Department of Agriculture could do good service, as the undertaking is too much for private effort. Every important European country has a honey "flora." Russia, probably, has the best.

WAX FROM CANDELILLA WEED.

More particulars are now available regarding this wonderful discovery. If all the reports are true, beeswax will have a very serious competitor ere long. It is said the quality is high, and there seems to be plenty of it. At any rate, the plant, *Pedilanthus pavones*, is common in the states of Coahuila, Nuevo Leon, Chihuahua Durango, Zacatecas, Sonora, Sinaloa, Baja California, Jalisco, Pueblo, and San Luis Potosi. There is some of it this side of the Rio Grande, in Texas, and in New Mexico and Arizona.

The plant is described as growing to a height of 3 to 5 feet in the form of stalks without leaves. These are from ¼ to ½ inch in diameter. An acre will yield from one-half to two tons of weed per annum. The amount of wax is from 3½ to 5 per cent.

The color of the wax is light, and it may be bleached white. It has a high melting-point, placing it ahead of all other vegetable waxes. It makes fine candles, and gives a beautiful light. It makes good varnish, and is fine for shoe-polish; in fact, it gives more luster than Carnauba wax. It is considered excellent for phonograph records, and it answers well for the insulation of electric wires. It has a higher melting-point than beeswax, hence it could be used by druggists; but that will largely lie with the pure-food authorities at Washington.

It certainly looks as though the new wax would prove a serious rival to beeswax. All *substitutes* for beeswax ought to pay a duty of 10 cts. per lb. I would be satisfied to let beeswax in free, provided substitutes paid a duty.

IRRIGATION PROJECTS.

The lands on the Sun River, Montana, project are being rapidly taken up.

The Truckee-Carson project is 90 per cent completed. Owing to heavy falls of snow in the mountains there will be plenty of water available.

There are over 16,000 acres in cultivation under the Leasburg diversion dam in New Mexico. It is believed the supply of water will be ample, but there is no storage.

On the Carlsbad, New Mexico, project, water was turned on March 15. Many acres are being planted in alfalfa and orchards.

On the Strawberry Valley project in Utah an additional force of men is being employed to complete the tunnel, which will be three miles in length.

The sum of $100,000 has been alloted for the Flathead project in Montana. This will construct the Jocko unit (6000 acres); the Mission unit (6000 acres), and the Polson unit (3000 acres). The work will be done mainly by Indians.

At the Yuma, Arizona, project 7500 acres are under cultivation.

On April 1, 50 per cent of the pumping system of the Minidoka project in Idaho was completed

On the Gunnison tunnel, near Montrose, Colorado, only 1739 feet of the six-mile tunnel now remains to be completed. In March, 595 feet advance was made.

On the North Platte project the Pathfinder dam is now 194 feet above the foundation.

Private companies expect to add 500,000 acres to the irrigated lands around Denver. It would seem from this that the government irrigation-works encourage rather than hinder private enterprise.

CONVERSATIONS WITH DOOLITTLE

AT BORODINO, NEW YORK

HOW TO FIND A QUEEN, ETC.

"I came over to-day to have a little talk with you about queens. Do they often die at this season of the year?"

"I should not like to say that queens die more frequently in the spring than during the summer; but when they do die at this time of the year it is absolutely necessary that the bee-keeper know it, else that colony will perish; for the bees which have been wintered over, rapidly die off from the work which now devolves upon them.

"Can I tell by going in front of the hives which have good queens and which have not?"

"Outside diagnosis allows us to guess at the matter of queenlessness somewhat by seeing the bees listless about the entrance of such colonies as have no queen; but to know for certain that any colony is queenless, and much more to know whether the queen in any colony is good or poor, it is necessary to open the hive and look the combs over. If, after pollen has been brought in for a week or so, no eggs are found in the cells of one or more combs, you may rest assured that such a colony has no queen; or at least no queen which is good for any thing."

"But if I find eggs, how am I to know whether the queen is a good prolific one or not?"

"A good prolific queen lays her eggs in a compact form, so that there will be brood in ninety-five per cent of the cells in that space occupied by the brood, so that we find each frame, which has any brood in it, with the cells in the brood-circle mainly filled with brood in some stage; while a poor or failing queen scatters her brood all about in the cell, so that, with a very poor queen, half of them may have no brood at all, and this scattered all about among the cells containing brood. To be absolutely sure that any colony has no queen, or is what we call queenless, take a frame of comb having eggs and some larvæ in it, and put it in the center of the supposed queenless colony, leaving it for three days. If queenless, queen-cells will be formed over some of the little larvæ, while if no such cells are started you can rest assured that the bees of that colony have something which they are respecting and keeping as a queen, and which must be found and destroyed before a good one can be introduced. Many a bee-keeper has rushed his order off to some queen-breeder for a queen for his queenless (?) colony, because he found no eggs in the cells, only to lose his purchased queen because he did not test the matter with some brood to know of a surety by cells being built that they would accept a queen."

"How can I find a queen? I hunted half a day to find a queen in one of my colonies, and did not find her then. You old bee-keepers tell us to find a queen for this, that, and the other purpose, as if it were as easy to find a queen among forty thousand other bees as it would be to find a black bean among a lot of white ones."

"Well, in the first place don't use so much smoke as to get the bees out of their normal condition through the great excitement a lot of smoke gives. If you go carefully in opening the hive, and use smoke only as it is necessary, even the worst black bees can be handled without becoming demoralized. To the accustomed eye of the practical apiarist, a prolific queen is almost as easily found as the black bean you speak of, especially if the bees are of the Italian race; but a virgin queen, or any queen not good enough to lay much or any, is often hard to find by the expert. I will admit that much."

"An old bee-keeper told me that there was a difference in the time of day when I looked. Is there any thing in that?"

"The best time is when the bees are flying the most freely, and this is generally about ten o'clock on some bright warm morning when the most of the old bees are in the field for honey or pollen. Then you will want a light box with you the size of the hive, or another hive-body, to secure the best results."

"Will it be any better to set the frames in such when looking them over than to set them on the ground as I did?"

"It will give you an advantage if you do not find the queen the first time over the combs, and is a great help at times when the bees are disposed to be poking around after honey that they may steal. Open the hive carefully, smoking just enough to keep the bees from flying and stinging. Now sit on your stool, box, or an old hive, with your *back* to the sun, so that the sun will be shining down into the hive, as soon as one or two frames are taken out. Take out the first frame slowly, making sure that you do not hit it against the hive or any thing else, so as to make the bees nervous, thereby setting them to running and stinging. When you have the first frame out, look it over carefully; and if you do not see the queen, set it in the box at the side furthest from you. Now you are so you can see down into the hive. On taking out another frame, glance down the side of the next one in the hive, when, if the queen is there, she will be easily seen in the sunshine, and especially if she starts to go around to the opposite or dark side of the comb, which an unprolific or virgin queen is almost sure to do. In thus running the sun shows the sides of her abdomen, to the eyes looking obliquely down, to much better advantage than could be if the eyes were looking directly upon her back. If you do not see her after looking two or three seconds, look on the opposite side of the comb you are holding in your hands, turning it to the sun and looking obliquely as before; for nineteen times out of twenty she will be on one of these dark sides of the comb. In this way keep on till she is found or all the frames are taken from the hive."

"Suppose I have not found her."

"Look the bees over that still adhere to the sides of the hive; and if she is not with them, which she is not likely to be if the bees have not been stampeded, begin to set the frames back from the box, working and looking as you set them back, in the same way you did in setting out, and your chance is just as good as when setting from the hive, if the bees have remained quiet, as they will if you have worked rightly. I find 29 queens out of 30 the first time over, often on the second or third frame, and the 30th one before the combs are back in the hive."

GENERAL CORRESPONDENCE

SWARM CONTROL.

Dr. Miller's Present System of Comb-honey Production; a Valuable Article.

BY DR. C. C. MILLER.

I have the following:

Please give in GLEANINGS Dr. Miller's present system of swarm control. Is the method he used in 1908 described in his book?

I followed in 1908 the plans given in "Forty Years Among the Bees." I say "plans," for there is no one plan that is always followed. I will give here a short statement of what was done. Let me say in advance, however, that if any one is expecting "a sure and easy method by which one may be certain of having no swarming at all," he may as well stop right here. For more than 45 years I've been studying the swarming problem, and experimenting upon it, but haven't fully got there yet. Do my best, I still have two to five natural swarms every year. If you want to know how I manage to do no worse than that, read on.

I clip my queens' wings. That doesn't hinder swarming; but if a colony does swarm it can't go off.

As a help toward limiting the amount of swarming, I rear young queens from stock that shows little or no inclination to swarm. You say, "Why, I thought you reared from colonies giving the biggest yields." Well, that's pretty much the same thing. The colony that gives the biggest yield is about certain to have fooled away no time making preparations for swarming; and a colony that never starts queen-cells is pretty sure to give a bumper yield.

I use bottom-boards that leave a space of two inches under bottom-bars. That leaves good chance for ventilation. Just before storing begins I put in a bottom-rack, which prevents the bees building down without interfering much with ventilation. I try to let the bees have, at all times when they are storing, *more* surplus room than they need. They should never for a minute feel that they are crowded for room. A bait section in the first super starts them to storing there before they are *crowded* into the sections. When the first super is half filled—perhaps quite a bit sooner if a big flow is on—an empty super is put under. When this is half filled or more, another is given, and still another is constantly put under as fast as the last one is half filled. Not only this, but an empty super is generally put on top of all. The bees may not need it; but if they happen to, it's there. Next round it can be put under.

So much by way of breeding and giving plenty of ventilation and room. Now let us come to the swarming time. Last summer the very first white-clover bloom was seen May 25. June 3 the bees appeared to make a beginning at storing, and we began to look through the hives for queen-cells. In most of them no cells were found. If no cells were found in a colony we left it till the next round, ten days later (that ten days might be a day or two sooner or a day or two later, according to the weather and our convenience); and so long as we found no cells at each round we did nothing but thank our stars that *that* colony was putting in all its energy at storing honey.

But suppose at the first, or some succeeding round, we found queen-cells. We destroyed them. At the next round we might find one of three things: We might find no cells started, in which case there was nothing to do; we might find eggs or very young larvæ in queen-cells, in which case we destroyed them and left the colony for another ten days; we might find big larvæ or sealed cells, in which case it was time for something to be doing.

That "something" was to give the bees in some way a vacation from brood-rearing. It might be by taking away all the brood—that is, shaking a swarm. But that is equivalent to stopping the laying of the queen for 21 days, and it would interfere less with the harvest if we did not reduce the force of the colony so severely. So we shook no swarm last season.

In some cases we used the "foundation plan." We killed all cells, put a lower story under the full one, an excluder between the two stories, and put in the lower story the queen and two or three frames of foundation. Ten days later we destroyed any cells found, took away the lower story and the excluder, and restored the queen to her old place. The frames from below were used in nuclei or wherever needed. Very little was generally found done in them—nothing beyond very young brood, and perhaps only a small amount of eggs. The queen appeared to have sulked. That colony might go the rest of the season without thinking of swarming again; but we couldn't feel sure of that. So we had to watch it every ten days; and if it again persisted in starting cells it had to be treated again.

Instead of putting foundation in the lower story, perhaps we put from the upper story the frame with least brood in it, and added two empty frames, not even starters in them. The little comb built in these could be melted up into wax.

In many cases, after killing the cells we took away the queen with two frames of brood and adhering bees, and put them in an empty hive. Perhaps we "put up" the queen. That is, we put the hive over the colony, on top of supers and all, of course having no communication with the colony below. Ten days later, after killing cells we returned the queen and her two frames. If in need of a nucleus, instead of "putting up" the hive we put it on a new stand. Ten days later we returned the queen with one frame of brood, and had a nice nucleus left, with bees having no inclination to return to the old stand. I might remark that, whether we put up the hive or put it on a new stand, we shook in some extra bees to allow for some that would return to the old hive. But when the queen is taken with them, not so many will desert for the old hive.

In any case, where a queen was not above the average in quality, or if for any reason we did not care to keep her, when her colony needed treatment we killed her, killed the cells, ten days later killed the cells again, and introduced a young queen that had been laying but a few

days. Then in the record of that colony was written the magic word, "Pass," and that colony was considered safe without any further attention for the rest of the season. Yet two or three of the colonies having these young queens afterward swarmed. I don't think such a thing ever happened before. The like may never happen again, for 1908, for some reason, was perhaps the worst season for swarming I ever knew.

If I had my life to live over again I think I'd try harder to breed out the swarming impulse, but I'd stick to pure Italian blood, and I would watch for good temper.

Marengo, Ill.

[See editorial reference elsewhere.—ED.]

PRACTICAL INSTRUCTIONS FOR BEGINNERS.

Buying Bees; How to Select the Strongest and Best Colonies in a Yard; How to Determine the Condition of a Colony by a Glance at the Flying Bees at the Entrance.

BY E. D. TOWNSEND.

In May of my second year with bees four more colonies were bought, which, with my two taken from the tree, made six at the beginning of the second season. These were increased to eighteen during that summer, though but very little honey was secured. If I were to chronicle all the mistakes I made that season I would fill GLEANINGS several times.

In the first place, when I had but the two colonies, a party was found who had bees for sale in Metcalf hives, and, by returning the hives after the bees were transferred, the four colonies were bought for $20.00—about twice what they would cost now. These were transferred to Gallup hives immediately after moving them home, which was during fruit-bloom in May, 1877.

A beginner, after finding bees for sale, would do well to have some experienced bee-keeper go with him to select the colonies. This may not be convenient, and in many cases, perhaps, he will have to depend on his own judgment. It seems a natural thing for an inexperienced person to look for colonies heavy with honey, selecting them usually by lifting the hives or looking down between the combs. This, in connection with a good cluster of bees, would be the proper thing to look for if one were buying bees in the fall, when a long winter is ahead necessitating 25 or 30 pounds of honey to carry the bees over until the next honey-flow in June. However, in the spring, during fruit-bloom, when the main honey-flow is only three or four weeks away, it is not honey that one should look for, but large clusters of bees, and combs at least two-thirds full of brood. There should be, of course, about ten pounds of honey to last the bees until the opening of the main honey-flow the next month.

In a yard containing as many as 25 colonies one may find them in all conditions, from a mere handful of bees to those very strong. These latter are the ones that will do the work in the supers, the smaller ones doing nothing, perhaps, but building up in shape to winter again by the next fall. Then there are queenless colonies that no one wants at any price. How to select these rousing colonies instead of the small ones is worth considering. Experienced bee-keepers can tell by the indications at the entrance which colonies are strong, which medium, and which are weak.

HOW TO SELECT GOOD COLONIES WHEN BUYING FROM EXAMINATION AT THE ENTRANCE.

To select the colonies, go into the yard during a good day for the bees to fly, and walk down past the hives, noting the flight of the bees. During fruit-bloom is a good time to buy, for the strong colonies will then have a good flying force, and the bottom-boards will be free from obstructions, showing that the hive contains a large number of strong workers that are through housecleaning for the spring.

One of the very best indications of a good thrifty colony at this season is the amount of pollen the bees are carrying in. This is carried on the legs of the workers, and can be readily seen as they enter the hive. I have talked with people who believed this pollen to be the wax that the bees use in building comb, and that they had gathered it somewhere for this purpose. Pollen is the dust, or fertilizing agency, produced by the flowers. It is mixed with honey by the bees, making a doughy substance called bee-bread, which is used for feeding young bees still in the cells; and with the hive full of only young bees to feed, much pollen is needed. It goes without saying, that the hives into which bees are carrying lots of pollen contain colonies strong in bees and heavy with brood.

Queenless colonies can be told by their lack of energy at the entrance. The bees have no brood to feed, and no pollen to speak of is needed; and although an occasional bee will be seen loaded with pollen, it will be noticed that something is wrong, for they all lack the energy of the bees belonging to colonies in a normal condition. Fortunately there are but few queenless colonies in this condition at this season of the year. They usually die earlier in the season.

After deciding from the entrance indications which are the desirable colonies to buy, the combs should be examined to see that they are straight in the frames, and that there is a good percentage of worker cells. At this time, also, one can make sure that the colonies are strong in brood and bees, for it will not do to depend entirely upon the entrance indications, although in this way one can save the time taken in looking through a great lot of weak colonies before finding the more desirable ones.

Many bee-keepers, nowadays, hive their swarms upon full sheets of foundation; and if any can be found having combs built in this way, it would be a good plan to buy all such; for, by so doing, good straight worker combs can be secured. Those who profess to be bee-keepers at all, use at least a strip of foundation in the top of the brood-frame to start the bees building the combs true in each frame. If starters are used in the frames of the hanging type, the combs containing a large percentage of drone-cells can be taken out and replaced with new frames containing full sheets of foundation.

MOVING BEES HOME.

After buying the bees they will have to be moved home; and if the moving is done with a

team, bolster springs should be used in the wagon; but if these can not be had, some straw in the bottom of the regular wagon-box will do to set the hives on, this straw to take off some of the jar caused by the wheels moving over stones or rough places. Last summer we moved 160 colonies without springs or straw, and we crossed two railroads where the road was very rough, but not a comb was broken. If colonies have been in the hives two or three years, so that the combs are old and tough, such combs will stand a great amount of hard usage without breaking. After one has moved colonies by rail, and learned how much knocking the combs stand without breaking, he will not be so worried about breaking them when moving with a team.

To prepare strong colonies for moving, nail wire cloth over the entire top of the hive; fasten the screen on with pieces of lath; nail a strip of lath also over the entrance, as the bees will have all the ventilation they need through the top for so short a haul. If the hive has a loose bottom-board, this should be nailed securely. We go early enough in the afternoon to the yard to be moved to nail on bottoms and screens while the bees are still flying. Then toward night, after the flying is over for the day, a piece of lath is nailed over the entrance. The hives are then loaded on the wagon and drawn home in the night. After placing them on the stands that they are to occupy permanently, the entrance-blocks are removed immediately. Never keep bees confined in the hives a minute longer than is really necessary. There are many reasons for this that can not be given here.

Remus, Mich.

[See editorial reference elsewhere.—ED.]

CHILLED BEES RETURNING TO THE HIVE AFTER 72 HOURS.

A Very Interesting Set of Experiments.

BY H. R. BOARDMAN.

[Our readers will remember our having put cages of bees on cakes of ice in a refrigerator, and left them there for a week, and how those bees, although chilled stiff and hard, would revive at the end of that time when subjected to a warm temperature, and be as lively as ever. It will be recalled that on page 261 for Feb. 15, this year, we reported how large numbers of bees had flown out on one balmy day in February; how the weather changed; how they became chilled, and were scattered all over the ground, and on the hive-covers by the thousands; of how it warmed up the next day, and how those same bees, notwithstanding the temperature the night before went down to freezing, under the influence of the warm and inviting sunshine went back to their hives.

But our friend H. R. Boardman (the man who is an expert on wintering bees) has gone us one better. His bees, instead of being chilled or frozen over for one night, were soaked in the rain, and then subjected to a chilling and freezing temperature for 72 hours, and yet revived and went back when the conditions and weather permitted.

If our experiments in the refrigerator are any criterion, it is barely possible that bees that have flown out in this way *might* remain in a chilled condition for a whole *week*, and still return if the sun should come out and warm up the atmosphere.

We have much to learn about bees yet. Heretofore we have commonly supposed that bees that flew out and became chilled on the ground never returned. But we have now proven that this is a mistake providing a warming atmosphere is not too long deferred.—ED.]

April 2 I had decided to set out my bees on their summer stands if the weather should be favorable. Why on that particular day? It was my 75th birthday, and I could think of no better way of celebrating it. The morning was all that could be desired—the weather warm and pleasant. By 10 o'clock I had set out 50 colonies, and the bees were flying freely; then the wind changed into a cold quarter, and the bright outlook was chilled. The bees stopped flying, and I called a halt. Many of the bees that had stayed too long on the wing fell chilled, unable to reach their hives.

At noon I went out to inspect my morning's work. My pleasure was chilled into disappointment. All through the yard and about the house and garden the ground was strewn with chilled bees. Many had crawled into little groups. These chilled bees were apparently dead, their bodies curled up, their wings extended.

Mrs. B. expressed much surprise that these dead bees came to life again on being brought into a warm room. "Yes," I said, "if it would come warm again during the afternoon many would, no doubt, revive and be able to return to their hives."

But it remained cold, and it rained most of the following night, and some of the time a heavy downpour. The next morning the mercury was uncomfortably near the freezing-point.

I went out into the bee-yard. Little groups of chilled bees met my eyes like haunting ghosts on every side. I stooped and picked up a few of those little water-soaked mummies and placed them carefully in my hand—for what, I hardly knew. I took them into the house and put them between two tin cups and put them on the warming-oven of the kitchen stove. Fifteen minutes afterward I opened this little tin box, and out rushed the bees, restored to life and ready for business. Some of them flew away to the window. In all of my many years of experience with bees, no greater surprise has come to me than this. I became intensely interested to learn how long this suspended animation would continue. I experimented during the day in reviving my chilled pets with most gratifying success. Thirty hours had now elapsed, during which they had been apparently perfectly lifeless. The next morning was a heavy frost, and ice formed on the water. "They are dead enough now," I thought, as I walked out into the bee-yard. No bee could survive two such nights as the two past have been, out in the open air, with no protection from the weather; but I was interested, and proceeded with the experiment as before.

I picked up one in a place, twelve specimens in all, put them in the little box, and placed it on the warming-oven as before. Eleven of the twelve rushed out on opening the box, running over my hand quite lively, ready to take flight for home after 42 hours of suspended life.

I continued these experiments at frequent intervals throughout the day, with the same interesting results. The following night was milder, and the next day warmed so that the bees flew from the hives freely in the yard. Many of the chilled bees that I had been watching with so much interest recovered and crawled about the yard with considerable activity. Many of them, undoubtedly, were able to return to their hives after three full days of this severe test. I felt well paid for what I at first lamented as a serious loss in the valuable information these experiences had brought to me, although I had not been able

to determine how long these bees might have lived. I finished setting out the bees. I wintered 100 colonies in the bee-house, and 14 outside, all wintering perfectly and without loss.

Collins, Ohio, April 15.

THE SCOPE OF THE NATIONAL COPYRIGHT LAW AND ITS RELATION TO HONEY-LABELS.

Can the Word "Alfalfa" be Copyrighted so as to Become the Exclusive Property of Any One Person or Company?

BY CHARLES J. WILLIAMSON.

[Some little time ago the Colorado Honey-producers' Association, of Denver, of which Mr. Frank Rauchfuss is manager, was notified by the Frisbee Honey Co., of the same city, to discontinue the use of the word "alfalfa," on the ground that they (the Frisbees) had used the word longer than any one else, and were, therefore, entitled to a copyright. Our opinion has been sought, as to whether a common word like "alfalfa" could be copyrighted and thus become the exclusive property of one company or person. We placed the correspondence relating to the matter in the hands of our patent attorney, Mr. Chas. J. Williamson, of Washington, and asked him to prepare an opinion for us to publish. The following, just at hand, would seem to indicate beyond a question or doubt that the word "alfalfa" may be used on honey-labels by any one, on several grounds.—ED.]

The A. I. Root Co.:—In accordance with your request I have given consideration to the questions which have arisen in regard to the use of the word "alfalfa" as applied to honey, in connection with the claim of the Frisbee Honey Co., that it has the exclusive right to the use of that name for honey, and I beg leave to advise you as follows:

In my judgment, based upon the facts and the law applicable thereto, no one has the exclusive right to use the word "alfalfa" as a trade name or mark for the designation of honey, whether that right be claimed on the ground that the word is a trade-mark without reference to the national or federal trade-mark law, or whether in respect to a provision of that law which gives a right by registration to trade names or marks that are not cases of strict or pure trade-mark. Said provision of the law is, that one who has had the exclusive use of such a name or mark for more than ten years prior to the passage of the Act of Feb. 20, 1905, shall have the right to register it in the United States Patent Office.

I will consider, first, whether or not the word "alfalfa" is appropriable on the ground that it is a strict or technical trade-mark; and, second, whether or not it is the case of a name or mark to which exclusive rights can be acquired under the ten-year proviso of the Trade-mark Act of Feb. 20, 1905.

1. It is elementary in the law of trade-marks that no name or word or mark can be appropriated exclusively by any one which is descriptive of the nature or quality or properties of the ingredients composing the article to which the name or mark is applied. Thus, the Supreme Court of the United States, our highest tribunal, and the court of last resort in this country, in the case of *Brown Chemical Co. vs. Meyer*, 139 U. S., 542, makes this statement:

> The general proposition is well established that words which are merely descriptive of the character, qualities, or composition of an article, or of the place where it is manufactured or produced, can not be monopolized as a trade-mark.

The word "alfalfa," applied to honey, of course means honey obtained from alfalfa clover. As it is well to be fortified with authorities wherever it is possible, I quote in this connection from A B C and X Y Z of Bee Culture, under the title "Alfalfa, or Lucerne," at page 6, as follows:

> Alfalfa has, during late years, come to be one of the most important honey-plants of the great West. . . . Of all the honey I have ever tasted, I know of nothing, not even clover (which has formerly held the first rank), that can equal it. . . . I have already spoken of the superb quality of alfalfa honey. If every one takes a liking for it as I have done, he will be almost spoiled for eating any other honey.

The name "alfalfa," therefore, applied to honey, is descriptive of the "composition" of the honey, for it means honey that is obtained from alfalfa clover, and in a sense it is also descriptive of the "character" or "qualities" of the honey. Being thus a descriptive term, and, indeed, the only term that can be employed to explain or announce that the honey made therefrom is made from alfalfa, no argument is needed to show that every producer and seller of honey that has been made from alfalfa has an absolute right to use the word to describe or designate his honey; and it, therefore, can not be a trade-mark to which any one user, such as the Frisbee Honey Co., can claim or assert a right to as his own peculiar, exclusive property.

2. Can the Frisbee Honey Co., on the ground that it used the name "alfalfa," as applied to honey, for more than ten years prior to the passage of the Trade-mark Act of Feb. 20, 1905, have or acquire any right to register the word under the ten-year proviso of that Act? The section of that Act in question reads as follows:

> Sec. 5. That nothing herein shall prevent the registration of any mark used by the applicant or his predecessors, or by those from whom title to the mark is derived, in commerce with foreign nations or among the several States, or with Indian tribes, which was in actual and exclusive use as a trade-mark of the applicant or his predecessors from whom he derived title for ten years next preceding the passage of this act.

The purpose of the above-quoted provision of the statute is to afford protection in those cases where names or marks have been used, which are not strictly trade marks, or, as they are sometimes termed, "technical" trade-marks, but which, by reason of having been long in use—for at least the ten years mentioned—are deserving of protection. An essential condition imposed by the statute, however, is that the one claiming the benefits of the provision of Section 5 shall have had "exclusive" use of the mark in question. Thus, though as I have herein before pointed out, the word "alfalfa" can not be appropriated by any one as a trade-mark to the exclusion of its use by others, yet if the Frisbee Honey Co. could show that it had had the *exclusive* use of that word applied to honey for more than ten years prior to the passage of the Act of Feb. 20, 1905, said company would have the right to register the word "alfalfa" in the Patent Office and obtain the advantages which come from registration. It appears from the facts laid before me, that you yourselves have made use of the word "alfalfa" to designate a certain kind of Western honey since 1880, and that others, for example Mr. W. L. Porter, of Colorado, has used the word "alfalfa" to designate alfalfa honey for perhaps twenty-five years. It follows, therefore, that the Frisbee Honey Co. has not had, and could not have had, "exclusive use" of the word

"alfalfa," and therefore an essential prerequisite or condition to registration under the ten-year proviso is lacking in the case of the Frisbee Honey Co., and it can have no legal or valid claim to the word "alfalfa" as a trade-mark for honey through or by virtue of registration under the ten-year provision of the Trade-mark Act. That this view is correct, is to be seen by reference to the decision of the Court of Appeals for the District of Columbia in *Worcester Brewing Co. vs. Rueter & Co.*, 133 O. G. 1190, which court is the only one thus far that has passed upon the question, and which in the case just mentioned said:

There is but one way left in which appellee is entitled to have its application for registration considered in this case, and that is under the proviso to section 5 of the act of Congress of February 20, 1905, which is as follows:

"That nothing herein shall prevent the registration of any mark used by the applicant or his predecessors, or by those from whom title to the mark is derived, in commerce with foreign nations, or among the several States, or with the Indian tribes, which was in actual and exclusive use as a trade-mark, of the applicant, or his predecessors from whom he derived title, for ten years next preceding the passage of this act."

The record discloses an actual and continuous use by appellee of the word "Sterling" as a trade-mark for ale for more than ten years next preceding the passage of the act of Congress. If it appears, therefore, that this use has been exclusive, even though the word is descriptive and not susceptible of registration as a technical trade-mark, appellee would still, by reason of its actual and exclusive use for ten years next preceding the passage of the act, be entitled to the right to register it. In the case of *in re Cahn, Belt & Co.* (27 App. D. C. 177), this court said:

"The last proviso of section 5, as amended and passed, was not intended to provide for the registration of technical trade-marks; for such marks had been cared for elsewhere in this act. The proviso admitted the registration of marks, not in either of the clauses prohibited by this section, if such marks were in actual and exclusive use as a trade-mark for ten years next preceding the passage of the act. In respect to technical trade-marks, this proviso is absolutely useless. It was intended to save the right of registration to the marks described in the proviso. . . . The last proviso of section 5 was intended to refer only to marks owned by the applicants, and in their actual and exclusive use of ten years."

It is clear that appellee, during the ten-year period, would have had no right to exclude appellant from the use of the word "Sterling" on the ground of its being a valid technical trade-mark. Not possessing this rigat, it is difficult to understand upon what theory its use can be said to be exclusive.

We think that the Commissioner of Patents erred in holding that the word "exclusive," as used in the proviso of section 5, means "the right to exclude." It has no reference to any right possessed by the user. Since the word did not constitute a technical trade-mark, no right to exclude could be asserted. Inasmuch as the word is used in the statute in connection with the words "actual use," and both expressions are used to qualify the special right conferred by this provision of the act, we hold that an actual use must be shown to have been possessed and enjoyed by the applicant to the sole exclusion of all others. The use could not be exclusive if, during the period, it appears that another was using the same word as a trade-mark upon the same character of goods. It is not denied that, during five years of this period prior to the act of 1905, appellant used continuously the word "Sterling" as a mark on the same kind of goods on which it was used by appellee. We are of the opinion that this is sufficient to prevent appellee from claiming such an exclusive use as would entitle it to register the word "Sterling" as a trade-mark.

The foregoing case is especially pertinent, because in that case the word sought to be registered was the word "Sterling," which, the court pointed out, being descriptive, as is the word "alfalfa," could not be appropriated as a technical trade-mark.

You will, therefore, see that in no possible view of the matter, under the law and the facts as I have above set them forth, can the Frisbee Honey Co., or anybody else, validly or legally claim any right to monopolize the use of the word "alfalfa" as a name for honey.

Under the National pure-food law it is necessary, when a label is applied to a food, that, in order to avoid the offense of misbranding, it must truthfully state the name of the substance or product. The law, therefore, makes it not only a right, but a duty, when a label is used, for the correct name of the article to be stated on the label. In the case of honey, it would doubtless be a sufficient compliance with the law simply to use the name "honey;" but undoubtedly any descriptive term or name that truthfully designates the honey may also be used, such as the word "alfalfa," providing, of course, it be not a word or name to which some one may have the exclusive right under section 5 of the Trade-mark Act of Feb. 20, 1905; and, of course, no name or term that constitutes a strict or technical trade-mark, which is the exclusive property of another person, can be used on the label. By the designation "strict or technical trade-mark" I mean some name or symbol of purely arbitrary character that is not employed to describe the character or qualities or composition, or the place of production of the article. Instances of such a trade-mark are the picture of a bear, your device of a three-leaf clover with the initials "A. I. R." on the leaves, the word "Kodak," and the word "Uneeda." In such cases as these the national pure-food law can be complied with by using the known or accepted name of the product; and any construction of, or any supposed provision of that law, which would appear to give a right to others to use a trade-mark belonging exclusively to one user would not only be unsound or invalid, but it would be inconsistent with the purpose of the law, which is to prevent the consumer being misled or deceived in purchasing food articles; and confusion or deception would result if what has become the distinctive trade-mark or name of one producer could be used by another.

Washington, D. C.

[We sought this opinion, not alone because of any legal question that might be involved between the parties in Denver, but because we desired to get information on the *general* question of what might be the legitimate subject of a copyright—a matter that is of far more importance to the average user of honey-labels than the issue between the parties in Denver. In view of the citations as above given it is doubtful if the matter will ever be brought before the courts.—ED.]

THE CANDYING OF COMB HONEY.

Frequent Re-sorting of Old Honey to Separate the Candied Sections.

BY FRANK RAUCHFUSS.

It seems to me that it would interest honey-producers to hear from honey-dealers and commission merchants throughout the country as to the manner in which lots of comb honey that have started to granulate are handled by them. I find that our commission firms here on the street are selling the honey just as received from the producers, no matter how long they may have had it on their hands. As a consequence, one grocer may receive a case that is in beautiful condition, while the next one receives one that is half granulated. If this man keeps his case and unloads on the consumer there will be a lot of people who will be disgusted with buying comb

honey, and who will be ready to declare that the bee-keeper was feeding sugar.

I think it is quite important that this practice of selling honey late in the season, without careful inspecting and re-sorting should be stopped, and that the jobber as well as the retailer should receive some instruction on the proper keeping and handling of comb honey. There is surely a need of it.

We re-sort all comb honey as soon as we see signs of granulation, never sorting over more at one time than we expect to sell within the next two weeks. The granulated is again subdivided into three classes. That which shows only a few cells is called "slightly candied;" that which is from one-fourth to one-half candied is called "part candied," any thing further along is called "candied." It has been found by experience that the first two grades can readily be sold for what it is at a lower price to firms that cater to a less particular trade.

If the honey is not sorted by the jobber, consumption will be reduced to such a point that a lower price is made to move the stock, and the producer who shipped choice stock which has not candied is the loser thereby.

Denver, Colo.

[This trouble of what to do with candied honey in late winter or early spring is indeed a serious one. It is made somewhat more serious in Colorado and other alfalfa-producing districts because of the tendency of alfalfa to granulate early.

Mr. Rauchfuss' plan of re-sorting and regrading, and then selling according to the degree of granulation, is the only sensible way, and, we may say, the only fair and honest way. Any dealer or producer who attempts to palm off his candied product at the price of otherwise fancy and No. 1 comb honey will only be a loser in the end. If it could only end there, no very great harm would be done; but such selling of granulated honey affects the whole trade and the demand for good comb honey in general. It ought to be just as unlawful to sell granulated comb honey for comb honey that is not candied as it is to misbrand any food product or drug; indeed, we are not sure but that, on a strict construction of the national pure-food law, one who sells granulated comb honey as though it were first quality, could be held responsible. Yes, we should like to have a test case made of it. If any one knows of such a person we will take pains to bring the matter before the federal authorities.

For the relief of Mr. Rauchfuss and others who are likely to find on their hands candied comb honey, we may say that we are conducting some quite elaborate experiments to see if such honey in the combs can not be reliquefied without in any way affecting the cappings or combs themselves.

A year or so ago some experiments in a small way led us to believe that candied comb honey could be restored to practically the same condition as when it was on the hive. Indeed, we did succeed in taking a dozen sections that were candied solid and bringing the honey in the combs back to a liquid state without affecting the combs. This was done in a large incubator.

Since we published the experiments we have been informed that an extensive buyer has tried out this method of liquefying comb honey in a large way, with gratifying results.

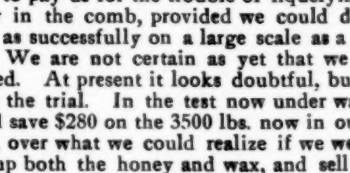
We recently constructed a room where we put about 3500 pounds of comb honey, in various stages of granulation. We have been operating this room for about a month back; but owing to our inability to maintain a perfect control of temperature, between 102 and 103 Fahr., the results have been somewhat indifferent. We have proved this, that we can arrest granulation in a hot room.

In view of our experiments in a large incubator we feel reasonably sure that honey in sections that has granulated can be brought back to a liquid state, without injury to the comb *providing* the temperature can be maintained uniformly at 103 degrees. Aye, there's the rub. Our experiments with room where the 3500 pounds of honey is stored has shown us the difficulty of maintaining a temperature uniformly at 103. We have employed a couple of automatic regulators and an electric bell operated by an electric thermostat to give notice when the temperature went too high; but in spite of us we found it very difficult to hold it at the required point. Should it run up to 106 or 107 the combs themselves will begin to sag.

Will it pay to attempt to liquefy granulated comb honey when we take into account the expense? We will just suppose that ungranulated comb honey would retail at 15 cts. On the same basis, perhaps, the extracted would retail for 8 cts. As the average section of honey weighing a pound contains about half an ounce of wax, that would give us approximately, when melted up and separated, one cent's worth of wax, and probably 7 cents' worth of honey, calling the honey worth 8 cts. a pound. If it cost one cent to melt and separate, that would make a net of only 7 cts. for the honey and the wax. According to these figures, if we could liquefy the honey in the comb without injuring it, and comb honey not granulated is worth 15 cts., we should have 8 cts to pay us for the trouble of liquefying the honey in the comb, provided we could do the work as successfully on a large scale as a small one. We are not certain as yet that we shall succeed. At present it looks doubtful, but it is worth the trial. In the test now under way we would save $280 on the 3500 lbs. now in our hot room, over what we could realize if we were to melt up both the honey and wax, and sell both at their market value.—ED.]

THE BOARDMAN HIVE-CART IN THE HIVE ROWS.

I note what you say in regard to the cart interfering with hives in adjoining rows. Where a hive-cart is used the rows should be arranged so that the hives will come opposite the spaces in the adjoining rows, thus:



Collins, O. H. R. BOARDMAN.

ANOTHER STYLE OF CORRUGATED-PAPER SHIPPING-CASE.

Something that Can be Put in the Flat or Knockdown Without the Use of any Paste or Stickers.

BY E. R. ROOT.

In our issue for April 15, page 238, we showed a style of corrugated-paper shipping-case devised by Mr. J. E. Crane. We sent a sample of one of these to a paper-box manufacturer to get prices, and received from them another style made on a different principle, which, it was suggested, might be better and stronger than the Crane model. We took some photos, which we now present to our readers.

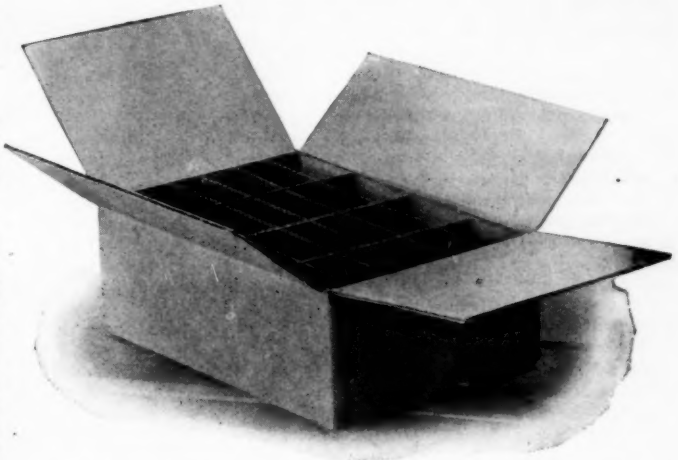


FIG. 1.—ANOTHER STYLE OF CORRUGATED-PAPER SHIPPING-CASE.

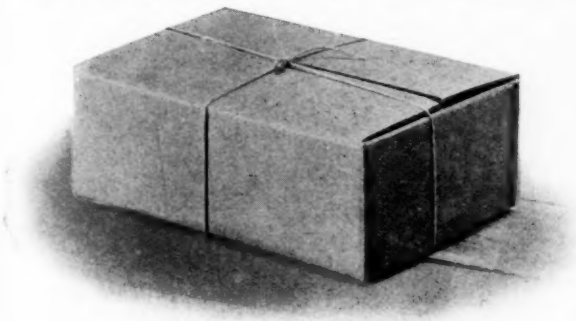


FIG. 2.—SHIPPING-CASE READY TO SHIP.

By referring to the various illustrations one will see that this case is probably stronger than the Crane. It makes use of a double top and a double bottom; and an extra inside lining makes a double thickness on all six sides. By referring to Fig. 4 dissected, it will be seen that the sides and ends project in the form of flaps at the top and bottom, folding over and meeting in the middle, thus making a double cover and double bottom. The effect of this double-thickness construction is to stiffen the case very materially. We have carefully tested the strength of the two styles of cases, and found the difference to be in favor of the one here shown.

To strengthen it further, an extra inside rim with its cross-partitions slips down into the case, so that, when the whole thing is folded up and tied, as shown in Fig. 2, we have something extra strong.

Still another point in favor of this construction is that the case can be put in more compact form in the flat or knockdown than the other style of case. This would make it possible for the consignee of honey to return the empties in the flat to the producer at very small ex-

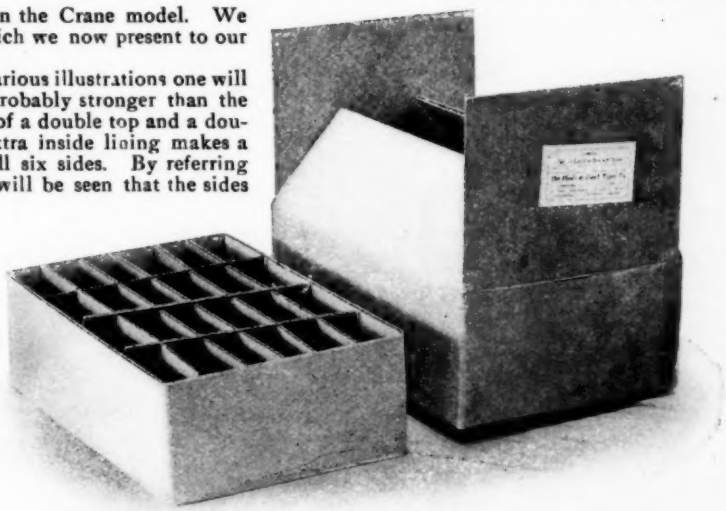


FIG. 3.—CORRUGATED SHIPPING-CASE WITH THE INSIDE RIM AND THE CROSS-PARTITIONS REMOVED.

pense. There is no reason why they could not be used over again in a separate shipment of honey. If this is possible it would affect a very material saving in cost. Fig. 5 shows how the separate parts can be laid one on top of the other, thus putting them in very compact form. Indeed, 50 or 100 of them could be put in a very small bundle.

Still another feature is the fact that the bee-keeper who receives this case in the flat will not be compelled to use any paste or stickers. It is pasted together at only two points, and this pasting can be done in the flat at the factory. When the several parts are unfolded and put together, no paste or stickers have to be used.

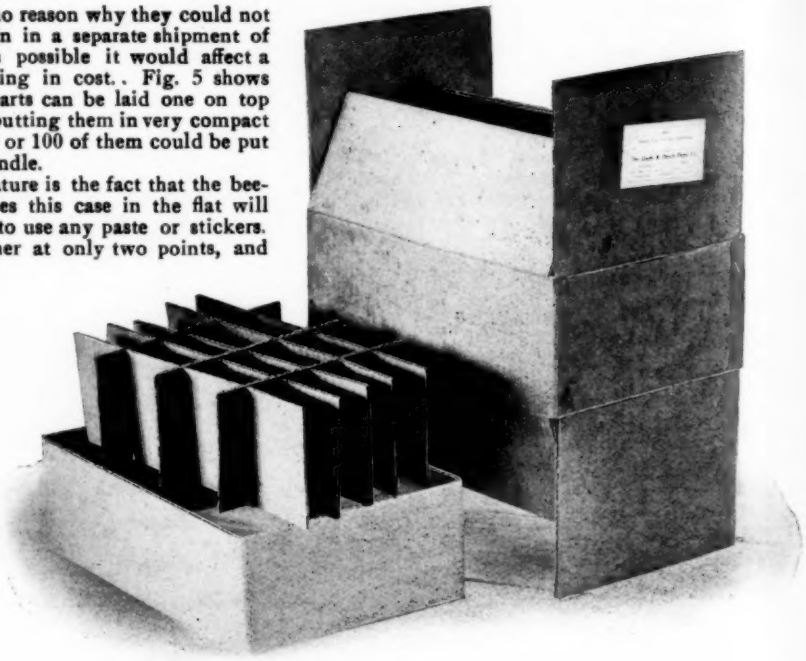


FIG. 4.—SHIPPING-CASE DISSECTED WITH ALL THE FLAPS OPENED UP.

So far we have stated the advantages of this form of construction over that adopted by Mr. Crane. Let us now look at the other side—the disadvantages. First, we have a slightly increased cost—a serious objection. There are some other objectionable features which may be more or less valid. We sent Mr. J. E. Crane, of Middlebury, Vt., a set of these pictures, and asked for his criticisms. In reply he says:

> 1. It is very inconvenient to get honey in and out.
> 2. It would not be so convenient to set on a counter as a box with a cover.
> 3. The most serious objection, to my mind, is that, when tiered up one above another, they would be liable to topple over, the top and bottom not being flat, the center of the top and bottom springing up and down. Perhaps if tiered up they might seem different. J. E. CRANE.
> Middlebury, Vt., April 23.

With regard to Mr. Crane's first objection, if the reader will refer to Fig. 1 he will see that the case can be opened up in such a way as to show all the sections; but it will take longer to do it. In the Crane case, all that will be necessary is to lift the cover. In the style shown in Fig. 1, one will be required to pull back four flaps. So we shall have to admit that Mr. Crane's objection No. 1 is valid.

Regarding No. 2 we really do not see why one could not be set on the counter as well as the other.

As to No 3, there is no reason why the new case should not be as flat on top as the Crane when tied with a string. It would be hardly safe to ship either without such tying. See Fig. 2.

Mr. Crane's application for patent, we understand, covers both forms of cases. In any event the Crane style is already on the market at a price ten per cent in advance of the price of wooden cases *without glass*. As the new cases do not use glass it will be seen that they can be supplied at approximately the same cost. The style here shown would cost 20 per cent more than the wooden cases without glass.

In view of the obvious advantage of these corrugated-paper cases over the wooden ones, it would seem as if they would in time be in universal use. If so, the problem of shipping comb honey in large or small lots with little or no breakage or leakage will be solved. This means a greatly increased market for comb honey where it has hitherto been denied.

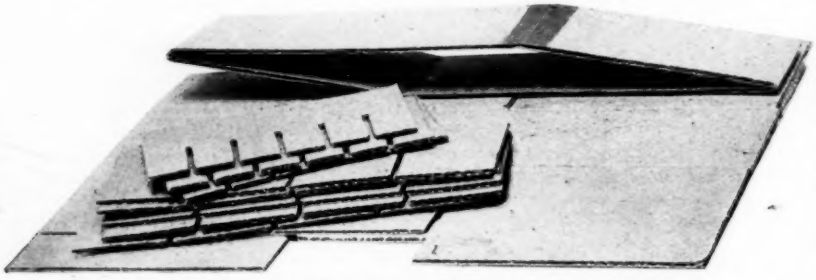


FIG. 5.—CORRUGATED-PAPER SHIPPING-CASE IN THE FLAT

THE CONTROL OF BEE TERRITORY.

Has a Bee-keeper a Moral Right to his Bee-pasturage?

BY J. L. BYER.

It is so seldom that our good friend Dr. Miller says any thing that we can disagree with, that, when we do get a chance, we never like to let the opportunity pass by. For some time I have been prompted to take issue with him on the question of a bee-keeper having legal control of a given territory, and that Straw on page 1423, Dec. 1, 1908, brought the matter to a climax. Before proceding further, let me say that with him I fully agree with friend Hutchinson when the latter says, "The man who will crowd in upon the territory of another should be looked upon as little better than a thief." Having said so much, it now rests upon me to explain my seemingly paradoxical views. So far as sparsely settled communities are concerned, i. e., sections which, on account of the nature of the land, forbid any chance of ever being intensively farmed, there may be room for argument. Among these localities might be mentioned some parts of Australia; and on our own continent, the mountainous sections of the country where bee-keeping is carried on, such as the sage districts of California. Possibly the sandy lands of Michigan and other places where the raspberry grows in profusion might come under this list as well, as I understand much of this land will never be fit for farming. While I have my doubts as to any one having a moral right, to say nothing of a legal right, to determine who shall or who shall not keep bees in a territory, even under conditions as outlined, I shall not argue that point, but, rather, confine my remarks to the question as it affects Dr. Miller, myself, and a great host of bee-keepers who keep bees which pasture upon forage raised in the main by the farmers around us. As I am more familiar with conditions as they affect myself, I shall use such conditions to illustrate the reasons that cause me to take views on the question different from those entertained by Dr. Miller.

My apiaries are all situated in rich farming communities, where one of the main crops is the raising of alsike clover for seed. This alsike is our main source of honey; in fact, if there were no alsike raised we would have to move our bees if we wished to continue in the business, as not more than one year in ten do we get surplus from any other source. As an exception to this statement I would say that in the past four years we have had a little surplus from the buckwheat; but as this crop yields nectar very sparingly on our strong soils, it is of little account to the bee-keeper.

Now, no one can dispute the point that the farmers who raise the clover have the first right to the nectar the clover produces, and it quite often happens that some of these farmers take a notion to keep bees so as to secure some of this honey for their own profit. Naturally they are not likely to consult Mr. Specialist Bee-keeper, who lives on a lot near them, even if his bees have had the exclusive use (not rights) of their clover-fields. These things have happened and are happening all the time, and I know of cases where some of these same farmers have become successful bee-keepers and have large apiaries right near specialist bee-keepers.

Suppose a law were in force giving me control of a territory five miles or more square, and some of my neighbor farmers who are raising the clover should take a notion to keep bees to secure the honey from this clover (raised on their own property), wouldn't I cut a nice figure if I tried to enforce that law? Honestly, doctor, do you think that I would have a *moral* right to do so, to say nothing of a legal right? No doubt Dr. Miller has more in mind, the thought of one specialist moving into the territory already occupied by another specialist; and, as already intimated, I agree that there is a moral wrong in such an action; but where are we to draw the line when it comes to having legislation on the matter? Any such legislation would be sure to be abused, and be the cause of any amount of friction and hard feelings.

As to the action of one bee-keeper moving into an already stocked locality for the sole purpose of keeping bees, that party is a fool as well as a rogue; for if he is the means of overstocking a locality it spells financial failure to himself as well as to his neighbor. Fortunately, examples of this kind are quite rare—at least in "our locality," and there seems to be an unwritten law or code of honor (call it what you wish) among bee-keepers that forbids the practice becoming common.

Right here comes in the thought as to what constitutes overstocking; and I have known bee-keepers to complain of being encroached upon, when other bee-keepers, disinterested parties, claimed that there was no overstocking by the second party coming on the scene. However, it is wise on the part of a bee-keeper seeking a new location to err on the safe side when deciding on a matter of this kind, and not give any possible cause for complaint.

The late Mr. Alexander held the view that the bee-keeping of the future would be almost exclusively in the hands of specialists; and if this is the case the matter of having control of territory would be somewhat simplified. However, that view is, in my estimation, extremely visionary, as I believe that professional men and others will continue to keep bees for recreation, if for no other reason; and there is no question that large numbers of farmers and others will, in the future, as in the past, continue to keep a few bees to provide enough honey for their own table. Would the advocates of legal control of bee-pasturage stop all these men from keeping bees entirely, or would they limit them to half a dozen colonies? If the latter course were decided upon, some day when the bees got to swarming freely our amateur bee-keepers would find themselves open to prosecution before they knew where they were at.

In conclusion, the question of legal control of territory for a bee-keeper in thickly settled communities is, in my estimation, an idea that a democratic people would never countenance. While I am open to conviction on the matter, yet I frankly admit that to my mind the question is surrounded with insurmountable difficulties, and I do not believe that the bee-keepers will exercise such arbitrary powers in my time. As the

question appeals to me, I would say further that I have no *desire* that such a law shall ever be passed; and this leads me to say that Dr. Miller must have some good reasons for taking the position that he does that he has not yet made public. I say "good reasons," for anybody knowing Dr. Miller is always assured of the fact that any arguments advanced by him on any questions are unbiased, and free of any sinister motives or methods.

Mt. Joy, Ont.

[In localities where the specialist furnished large quantities of alsike seed at half price to the local and near-by farmers, he would have a moral right to all the nectar that the farmers might raise from such alsike. Even the farmer himself would have no right to that nectar by keeping bees. Of course, this is a peculiar case.—ED.]

THE HATCH WAX-PRESS USED ON THE HOT-WATER PLAN.

The Hot-water Plan No More Rapid or Thorough, but More Convenient.

BY H. H. ROOT.

In our November 1st issue for last year, page 1313, as our readers will recall, was an article by E. D. Townsend on the subject of wax-rendering, in which a letter from Mr. W. J. Manley was given, advising the use of hot water in an *unheated* press for rendering wax on an extensive scale. Mr. Townsend mentioned using the Hatch wax-press in this way; that is, he simply kept a plug in the outlet at the bottom of the press-can, confining the hot water so that he was able to press the wax somewhat longer without danger of chilling. We have just rendered six or seven barrels of comb in this way; and while no more wax was secured than by the old way of allowing the wax and water to run out as soon as pressed from the comb, and although the work was no more rapidly done, yet it was rather more convenient, and there was less danger of chilling.

In rendering these combs we pressed them four or five times, raising the screw between each pressing in order to allow the refuse to become saturated again with hot water. However, even with this number of pressings we found that not all the wax could be secured by any means; and we feel, therefore, that it pays, in most cases at least, to boil the refuse again and give it the second treatment. It takes but little over half as long to run the refuse through the second time, since rather more can be pressed at once.

With the former method of using the Hatch press the outlet tube at the bottom was left open so that the wax and water ran out immediately. With this plan we found it was quite necessary to raise the screw, take out the plunger, and shake up the contents of the burlap, and then press again. After these two pressings we found that the amount of wax still remaining varied from eight to ten per cent. With the hot-water method—that is, by leaving a plug in the outlet tube, so that hot water surrounds the refuse, we found that it was not necessary to draw off the

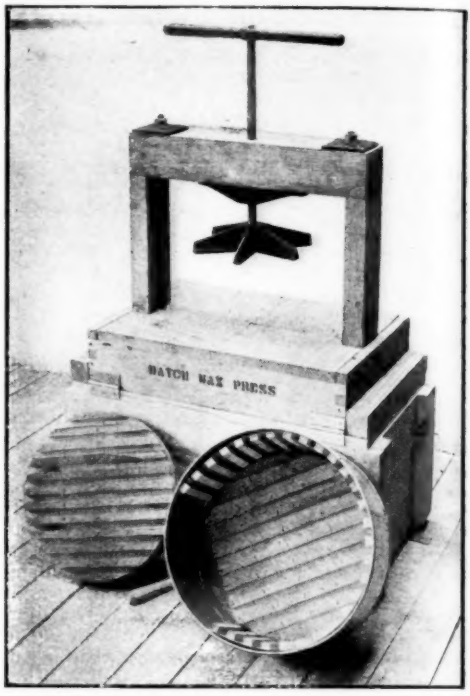


FIG. 1. THE HATCH WAX-PRESS WITH THE PARTS BELOW TO SHOW THE CONSTRUCTION.

water and shake up the refuse, as by releasing the pressure and allowing the contents of the burlap to become saturated again with water at least twice after the first pressing, about the same results could be secured. About as much time is required as to work the press on the first plan; but since it is not necessary to shake up the refuse we find it rather more convenient to use this hot-water plan.

We tried this hot-water plan in connection with the Hatch press several years ago, but we did not find it entirely satisfactory at that time, since the wax would chill on the surface of the water in the press can before the refuse was thoroughly pressed. Two plain wooden covers, however, as shown, stop this chilling entirely, and the wax remains in the liquid state because the cold air is kept away. Many who use the Hatch press may be interested in this method, and we will give the plan of working in full.

To begin, pour about two pailfuls of water into the boiler and set it on the stove. As this comes to a boil, keep adding old comb, stirring frequently. As much as half a barrel may be melted in one boiler at a time, or even more if necessary; but it is best not to have too much comb in proportion to the water used, since this plan it essentially a washing-out process, and good results, therefore, can not be secured when there is not enough water. Keep stirring the contents of the boiler until it has all been heated through thoroughly and has boiled until the wax has been reduced and the melted comb is of the consistency of mush. Then push the boiler to the edge of the stove, where it will keep hot, but

where the wax will not burn or become discolored from too high a temperature. Next put the wooden plug in the spout or tube at the bottom of the wax-press can; and after putting the folded-up burlap and follower in the can, fill it with hot water. This is done to heat thoroughly the press and all the parts that would come in contact with the cheese, in order to prevent unnecessary chilling. Then remove the wooden plug and draw off the water and pour it into the second boiler on the stove, which, as before explained, should be used for melting up the second lot of comb in case it is necessary to do rapid work. Slide the can forward on the platform, as shown in Fig. 2, and spread the piece of burlap over it. Dip about one gallon of melted comb and water into the press and fold the burlap neatly over it. The wooden plug must be kept in the outlet tube in order that the water and wax may not run out. In dipping in the melted comb, do not use a strainer or dipper with a wire-cloth bottom, for the idea is to transfer plenty of water with the comb in order to keep the wax from chilling, and also to aid in washing it out. Use an ordinary dipper, then, of pretty good size. The square piece of burlap should be of such a size that there will be plenty of room on top to keep the slumgum from washing out; but, on the other hand, there should not be so much as to make a great roll of useless cloth that will only be in the way. A foot on each side to fold over is enough. If this burlap be folded over as one would fold paper in tying up a package, there is no need of nails for keeping the edges together. Place the cleated follower on top of the burlap package of comb with the cleats running toward the spout, then push the can back under the screw. Apply the pressure slowly, turning the screw down more and more as the wax and water

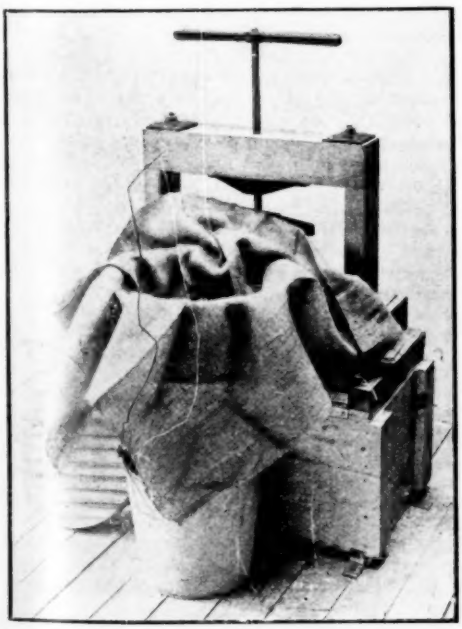


FIG. 2. READY FOR THE MELTED COMB.

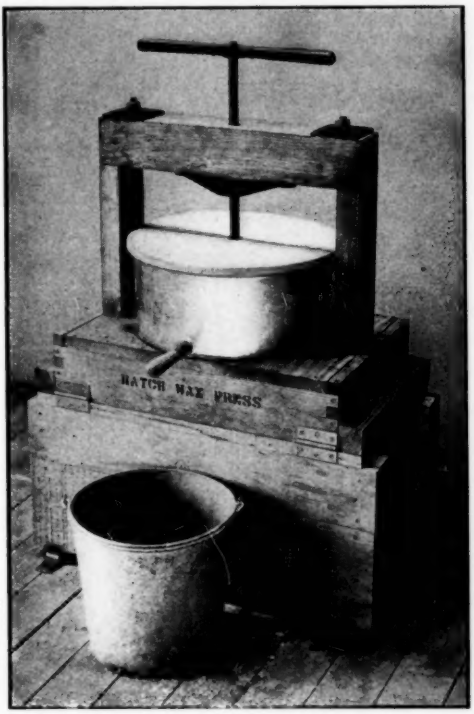


FIG. 3. WOODEN COVERS IN POSITION TO KEEP THE WAX ON TOP OF THE HOT WATER FROM CHILLING.

are pressed out of the comb. Enough water should usually be transferred with the comb so that the cast-iron follower will be completely covered, when the screw is turned down about half way. If not enough water has been dipped into the can, more should be added; but usually enough water can be dipped in with the combs so that no more will need to be put in. Next, place the wooden covers in position over the can. These will warp with the steam, but they can be reversed occasionally in order to make a good fit. These covers are used to keep away the cold air and thus prevent the wax from chilling. Keep turning the screw down slowly until it has reached the limit. This should take about two minutes. Then raise the screw about two inches, and with a piece of bent wire pull up on the rope handle of the wooden plunger until it floats to the top, so that the hot water may again saturate the contents of the burlap. In about one minute's time apply the pressure again slowly, until the limit has again been reached. Then release the pressure as before, and, after this, turn the screw down again for the last time. This whole process of pressing will take about ten minutes in all. While the pressure is still on the comb, remove the wooden covers from the can and tip up the press, as shown in Fig. 4, so that all the water and wax may run out into a small tub or large pail on the floor under it. Leave the press turned over for a few moments until all of the water and wax drain out, and then tip it back to its regular position. An old sack or piece of carpet should be thrown across the top of the

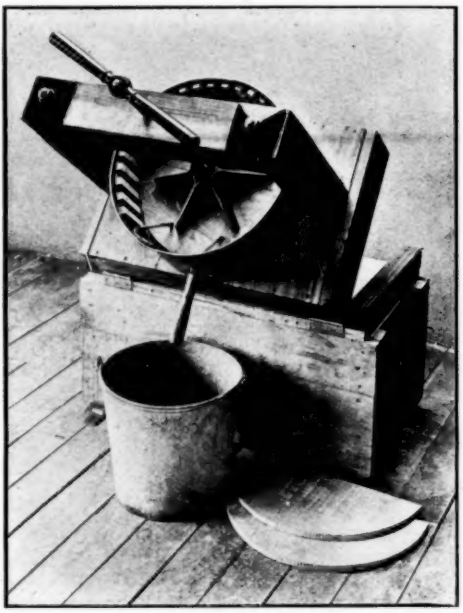


FIG. 4. THE PRESS TIPPED UP ON THE HINGES TO POUR OUT ALL THE WATER AND WAX.

small tub to keep the wax from chilling until it is emptied into the large can, as explained later.

The screw should now be raised, the follower lifted out, and the burlap shaken into a box near by. If the piece of burlap is rubbed quickly with the hands, most of the refuse can be shaken out. Now place this burlap over the press-can again, and repeat the process with another gallon of comb just as soon as possible. There should be no time wasted between one pressing and another, for the can, follower, etc., are liable to become cold.

When the screw is turned down the first time on the next batch of melted combs, empty the hot water and wax in the shallow tub into the large can near by ready for it. For convenience this can should have a faucet or gate at the bottom so that the hot water may be drawn off when it gets too full, this hot water to be used over again in the next boiler of comb. It does not matter, even if it is quite black and thick, for experience has shown that this dark-colored water does not discolor the wax. A piece of carpet should be kept over the top of this large can in order that the wax may not become chilled. At the end of the day, or whenever the work is over, the hot water may be drawn out until the wax begins to come, and then thrown away. The wax may then be run out into suitable molds, which, if made of metal, should be soaped on the inside with soapsuds to prevent the wax from sticking.

THE department of Questions and Answers, in the *American Bee Journal*, by Dr. C. C. Miller, is a strong and valuable feature of that journal. It is especially helpful to beginners.

GROWING SWEET CLOVER.

How to Get a Good Stand.

BY FRANK COVERDALE.

[MR. COVERDALE has had several years of experience in growing sweet clover for seed, and he is in position to know its value also for stock and for bees. See the Feb. 15th issue for 1908, page 220. His statements here, in regard to the growing of this clover, are of especial interest because of his long experience.—ED.]

If one wishes to grow sweet clover for the seed alone he will find that it is not profitable, for this plant must be grown for all there is in it. Sweet clover differs from all other clovers, and requires entirely different handling. A good stand for seed can not be secured on poor land in this locality; and even if it could, one would miss every other year, as this plant is a sure biennial. Furthermore, supposing it were possible to get a good stand, and the field were run for seed only for ten years, there would be only half a stand each year, as the old crop, if it were sufficiently thick, would smother the young plants and make the field very spotted. With fairly rich land there should be little if any trouble in getting a stand; but to grow sweet clover profitably, the field must be grazed during the early part of the season, until July 1st at least. After the stock is taken off, the clover will grow very rapidly, so that a fine crop of seed may be harvested. When the seed is sufficiently ripe, the field should be mown 12 to 14 inches from the ground, so there will be a heavy fall feed for stock after cutting. This is not true of either the red or alsike clovers. Stock thrive on sweet clover better than on any other legume that I have tried, and I have now had six years' experience.

The worst drawback is the difficulty in getting a good stand, as it takes two or three years before a field reaches its best, and during this time it seems like pulling teeth to plow it under, because it is worth too much to plow. However, in managing a field as outlined above, a crop of seed averaging two bushels to the acre can be secured each year, which, with the very excellent pasturage one gets, pays to an extent fully equal to a crop of corn, and there is much less labor.

At the Iowa Experiment Station, last year, five acres were sown to sweet clover in May, and a good stand was secured. The field was mown five inches above the ground, and it yielded 1½ tons of hay per acre. After this, sheep were pastured on it until winter set in.

This clover should be sown with timothy without a nurse crop. Cattle should be pastured on the field all summer, but not too heavily. The white sweet clover is apt to come up well, and then later get yellow or sick-looking in places. Perhaps one patch ten feet wide will do well, while another a short distance away gets sick, making the field look spotted. If one does not care to keep cattle of his own, stock belonging to some one else might be taken in. If no seed is wanted, the cattle can be allowed to run over it the whole season; and if bees are kept, a honey harvest will begin July 5th and continue until frost. The bees work on the field like one great swarm from early morning until late at night, and every one who gets a taste of the sweet-clover honey wants more of it.

The white sweet clover should be cut for seed while the stalk is still green; and after the crop is run through the huller the hay will be superior to the best timothy. It is best to work with the crop when it is a little damp, to avoid shelling; and when hauling, spread a canvas over the rack, and occasionally empty this canvas over the middle of the stack.

I am beginning to see that white sweet clover will thrive well anywhere after the bacteria become fixed in the soil, and it will bring up old wornout land very quickly when once a stand is secured, as it produces a great amount of humus, and gathers an immense amount of nitrogen into the soil. In 1907 my sweet clover produced three bushels of seed per acre where the cattle were taken off in the middle of July. There would have been a better yield, perhaps, if they had been taken off earlier; but by so doing the young plants are sacrificed that are to grow the seed for the next season.

Maquoketa, Iowa.

SHAKING AS A STIMULUS TO BEES.

Some Questions Answered and Other Points Explained; Is a Shaken Swarm Equal to a Natural Swarm?

BY GEO. W. WILLIAMS.

[While Mr. W. M. Whitney and some others may feel that the discussion relative to shaking to induce energy into a sulking or lazy colony is a waste of printer's ink and paper, yet we can not help thinking that there is something in it. In the article which follows, Mr. Williams expresses a strong conviction that a shaken colony behaves to all intents and purposes like a natural swarm, and can be treated in the same manner. Whether this is true or not, we can not say; but if it is true, or if there is a possibility of it, we can not afford to pass the subject lightly.

There is no denying the fact that a *natural* swarm is much superior to an ordinary colony for honey production. Now, if we can induce this same superiority into our bees at any time artificially we may well discuss the means for bringing it about. We suggest that our subscribers test it carefully, and report results. Mr. Williams seems quite able to hold up his end of the argument, and we now let him speak for himself.—ED.]

When Bro. Hutchinson asked me to give to the journals some of the things I told him about when we were together at the Detroit convention, I had no idea it would "stir up" the fraternity and have them buzzing around with so much energy or I would have hesitated a little. But I am glad that universal interest is being manifested, as I feel sure that we shall speedily get at the root of the matter.

I have received many letters of inquiry, and some of corroboration and also of criticism, and should be pleased to answer them all; but I am a busy man, and as I have no ax to grind, further than to call the attention of bee-keepers to the matter, I can not spare the time to answer each one personally, but will do so in a general way.

Dr. Miller's advice, p. 74, Feb. 1, is sound, as it usually is. He advises us not "to go crazy about shaking." I trust none of us are quite ready to go bughouse yet; and there is no writer on the face of the earth whose opinion I value higher than the doctor's. But, "cross your heart," are you not something of a shaker yourself, doctor? Let us see.

In giving us your system, p. 42, February *Review*, by which you secured such a splendid crop, I find you "dug into" each of your colonies no less than six times, and in some of them many more than that. Now, I am asking in all earnestness, have you any means of determining from your rich experience whether this constant "shaking" every ten days throughout the season had any part in giving them the energy to store your splendid crop?

Lewis H Scholl testifies that he has observed and used the stimulating effects of the "shaking" incident to moving bees early in the season for many years. In fact, he claims to have noticed it the first year he kept bees, when he was only twelve years old. I will admit that he has the advantage of me in that respect, for the "stimulating to energy" during my first year was mostly the other way, and I was too busy dodging to note any particular effect on the bees.

The question most frequently asked is, "How and why does the shaking increase the honey-yield?" To give proof of this fully would require too much space, and I will give only statements of facts which I have found to be generally accepted by advanced students.

We must bear in mind this proposition: Bees are creatures of instinct and not of reason; and, being such, respond to external or physical stimulus only, and not to an internal initiative, as do beings influenced by reason. In short, all their mental conditions are reflections of outside influences. This outside influence may be a small boy with a stick, or it may be any of the many other things that stimulate them to action. But the kind of action we want is the honey-gathering kind. This is the sort we find in perfection in a newly hived swarm. We can arouse this kind of action—*sometimes*—by drumming on the hive, by smoking them, opening the hive for any purpose, or, as C. P. Dadant points out, by moving bees in the spring. I have found that this activity is aroused in a greater or less degree every time the bees are disturbed in *any* manner sufficiently to cause them to set up the peculiar hum that A. I. Root calls "a home found" in hiving a swarm.

It follows that, a greater activity being stimulated by any of these means, more work will be done and more honey gathered, more brood raised, and more comb built.

Another pertinent question frequently asked is, "What results can be attained, and what manipulations discarded, in a system of shaking?"

I can answer this in a word. You can obtain all the results, and discard all the manipulations with a "shaken" colony that you would with a prime swarm. In all my experiments I have not found a single trait ordinarily found in a prime swarm which is not found in a shaken colony or swarm.

One objection urged against "shaking" is that it is cruel to the bees. It may be so; but it is not so cruel as a thorough smoking, nor any more so than a general overhauling of the bees for any other purpose; and who of us will be the first to dispense with his smoker or quit using moving frames because the bees object to them? I scarcely ever kill a bee in shaking; and as it is quickly over I use a minimum of smoke.

I have been asked to give my system in detail; but I do not care to do so at this time. It is over the minute things that bee-keepers quarrel and lose sight of the general principles. My de-

tails suit me, and might not suit anybody else; and if we agree on the *general principles* the *details* will care of themselves. But, as I stated in the January *Review*, I had one general rule that I find to be simple, sure, and safe. "Whenever, in going among my bees, I find a colony that for one cause or other fails to come up to this standard (i e., the condition of a newly hived swarm), I shake it." This brings it up to the desired condition.

A promiscuous shaking will not bring you a pound of honey unless the conditions warrant it; but if you study the above rule and apply it whenever the bees need it, I am sure you will be pleased with the results; and this summer I want you all to select the worst old loafer you can find; and when every thing else has failed, shake it out on empty frames, with two-inch starters, leaving a frame or two of eggs and young brood to keep the queen below; and if the results are not entirely satisfactory I am no prophet.

Redkey, Ind.

CARPENTRY FOR BEE-KEEPERS.

Necessary Tools; How to Saw a Board.

BY F. DUNDAS TODD.

In the bench that was described in the previous article, space was allowed in the tool-rack for about thirty tools; but that number is not all necessary for the man who proposes to make his own hives, or who must do the necessary repairing about an apiary, or make some of the "contraptions" recommended by some experimentalist. It is really wonderful, the amount of play one can get out of some of the contrivances we find described in the bee-journals. When starting in to make them I am often reminded of an old friend of mine who took a keen interest in my early efforts at flower-growing. I was in a hurry to know all about the various kinds of blossoms, so I sowed every seed that was to be found listed in the catalogs of three of the biggest florists in the States. I remember in my third year I had no less than 147 different kinds of seeds in my cold-frames. Well, one fine day in early March this friend dropped into my office to find large packages of seeds lying on my desk, and I told him what I was going to do. We talked flowers for quite a while and then he said, "Do you know I think there is more fun going through the catalogs in the winter evenings, anticipating the floral beauties of summer, than there is in seeing the actual blossoms? The florists can enthuse about a new variety until one thinks it must be a wonder; but the reality is usually commonplace; but then we have had our fun." That is how I feel about most things. The great art is to have something that one is deeply interested in. So I like to make most of the notions that are described, just to see what they look like, and I know there are lots of folks just like me; but they think that carpentry is something out of their line, and very expensive.

The editor grants permission, and so I will for a while cater to the man who would like to do a little carpentry if he only knew how. I have told how to make a really good bench at little expense. The next thing is to name the necessary tools. I give two lists—first, those I think absolutely necessary; second, those I find it very handy to have. Personally I possess a few more; but quite a few of them are used so seldom that I could get along without them.

ESSENTIAL TOOLS.

One 10-inch back-saw	$ .68
One cross-cut saw	1.40
One 14-inch wood jack-plane, 2-in. cutter	.90
One nail-hammer, 1 lb.	.60
One upholsterer's hammer	.30
One 10-in. half-round wood rasp	.28
One fourfold 2-ft. rule	.15
One 6-in. try-square	.25
One combination emery oil-stone, two grits	.20
One 3½-in. pocket level	.25
Total	$5.01

OCCASIONAL TOOLS HANDY TO HAVE.

One brace and drill set	$1.78
One ¾-inch wood-working chisel	.40
One ½ " " "	.40
One 10-inch file	.15
One screwdriver	.35
One side-cutting pliers, 6 in.	.45
One 8-inch draw-knife	.42
One spoke-shave	.20
One 6-inch carpenter's pincers	.15
Total	$4.30

The prices quoted are taken from the catalog of a large mail-order house.

Many a father would gladly spend the seven dollars necessary for a bench and the first lot of tools, or the eleven for the complete outfit; and let me assure him it would be as fine a moral investment as he ever indulged in. I have three boys, and the last thing I bother about is to talk morals to them; but I do keep them busy doing the things they like to do, and it is wonderful how little trouble they are.

Now for material to practice on, let me suggest that you talk to a carpenter who is building a house near you, and arrange for a load of left-over scraps of all kinds, thicknesses, widths, and lengths. For a couple of dollars I got enough lumber to keep myself and boys busy a whole winter—longer, I think. Mr. Officeman, who is also a bee-keeper, let me tell you that one of the pleasantest winters I ever spent was in carpenter work in my basement after I had turned the fortieth year of my life. My wife never needed to worry as to where I was, for she knew, and may be that was a comfort to her. Who knows? I had to learn how to use tools, and I will try to impart some of my knowledge to you.

About the first thing you will have to learn is to saw. Sawing looks easy, but it is not so easy to cut a piece of wood so that the end will be at a true right angle. Somehow or other one leans the saw a little over; and when we examine the cut, it is out of square. This sawing job has caused me more worry than any thing else in carpentry; but I can not say I can do the trick right the first time, even with years of practice. This, however, I have learned: That it is important to place the piece of wood at a convenient height so that one can look down squarely at the work in hand. I find a box about the height of a chair suits me very well; but a different height may be better for another. Also much depends upon where one looks when sawing. If I watch the side of the saw next to me I know the cut will slope in that direction. One friend advises that it is best to fix the eye on the off side of the saw, and this is certainly better; but with me

the surest way is to get my head right over the saw and look at both sides of it. For very exact work I use a miter-box, and even with that I too often get imperfect work.

When sawing, never press on the tool, but let it cut by its own weight. I find it hard to get my boys to understand this; but by insisting that they push the saw with the lower part of the hand they do better.

A great deal lies in the slope of the tool. If held too nearly perpendicular it will be more difficult to follow a straight line, and, of course, the wood will grip the blade. On the other hand, by holding it nearly level the tool will clear better; but the cut is more of a wobbly nature. Try to find the happy medium.

To start the cut, place the edge of the saw on the mark, steadying, if necessary, by grasping the edge of the lumber with the fingers of the left hand, and holding the left thumb-nail against the blade; then give a swift upward stroke, which will make a groove in which the blade will run on the downward motion. Avoid short niggling strokes; make long steady sweeps, using no bearing-down pressure to deepen the cut. Any saw that will not work without pressure needs to be sharpened or set, perhaps both.

The cross-cut saw is used for most ordinary work; the back-saw for small pieces, and especially if they are of hard wood and a fine edge is wanted, as it is hard to plane across the grain of the wood. Besides, a tool for end planing is not included in the list that has been given.

Some may wonder why I have not included a rip-saw; but, though I have one, it is seldom used, for, as a matter of fact, I find it is easier to rough-trim with a hatchet than to rip. Once you know how, trimming is easy. First draw your pencil-line, then set the bit of wood on end and start a narrow cut near the edge so as to find out how the grain runs. Of course, we want it to run out. If all right, go ahead; if not, turn the other end up. With a sharp hatchet one can trim pretty close and yet avoid the line.

Victoria, B. C., Canada.

To be continued.

CAPPING-MELTERS.

Why the Beuhne Outfit Does Not Work as Well in this Country.

BY R. BEUHNE.

Mr. E. D. Townsend's article, page 23, Jan. 1, has at last given me the information I have wanted for many months; namely, why the Beuhne capping-melter does not work so satisfactorily in America as in Australia.

From correspondence received, and from what I have seen in GLEANINGS, it appears that there were three distinct troubles with the machine in America which do not occur here when the machine is worked as it should be. First, there was clogging of the spaces between the tubes. The space should be exactly ⅛ inch; and if the machine is worked at the right temperature there will be no trouble unless pieces of very old hard comb go in with the cappings. Next, there was failure to separate honey and wax. This is due either to insufficient heat or to swamping the heating surface with an excessive bulk of cappings.

Last, but not least, there is the darkening of the honey through being kept too long at a high temperature in the pan of the melter.

Now as to the difference in conditions between America and Australia. The temperature of the northern and eastern part of the United States is, on the average, lower than that of Australia, so that we are so many degrees nearer the melting-point here. Then our honey is much denser, making both uncapping and extracting slower, thus delivering less bulk into the melter in a given time. During cool spells we do not extract; or when we do, uncapping and extracting are much slower still; and although the cappings are colder, the slow delivery into the melter gives the latter plenty of time to deal with them.

When The A. I. Root Co., in their experiments, found that the machine could not separate the large bulk delivered into it they turned the elbow tube upright to retain the partly melted mass in the pan to give it time to melt and gravitate into separate layers, drawing off the honey at intervals by lowering the tube. Evidently, instructions to this effect were sent to Mr. Townsend, with the machine; and as he followed these instructions the honey darkened, and the overflowing wax was not clean, whereas if the elbow tube had been raised only a little, so that the honey is flowing off constantly, and only a little in the pan, which is continually replaced, no overheating would have taken place; and when, after working for an hour or more, the wax overflowed, it would have been perfectly clean.

Of course, as slumgum accumulates in the receiving-pan the tube has to be raised a little more. If the melter fails to separate with your faster uncapping, a larger tube surface is necessary. We do not expect five-horse-power work of a one-horse-power engine, nor a two-comb extractor to do the work of a four or six comb.

Mr. Townsend is quite right, that the honey should get out of the hot pan as quickly as possible; and the proper inclination of the elbow tube does that. What is the correct adjustment depends upon the speed of uncapping and the nature of the material in the pan, and, like balancing yourself on a bicycle, it is acquired by experience.

Victoria, Australia.

[Our correspondent has very fairly shown the difference in conditions between bee-keeping in Australia and the northeast part of the United States. This, to a great extent, accounts for the Beuhne uncapping-melter proving to be less successful here than in Australia.

While Mr. Townsend and others in this country who tested the Beuhne machine were given general directions how to operate, they were also advised to test the machine very carefully, and to modify the method of manipulation, providing the conditions would seem to warrant. They were told this was a new machine, and we wished to test it carefully, to determine the fact whether we would dare to put it on the market in the form described by the inventor. The tests showed that it did not meet our conditions, and it was

therefore necessary to adopt an entirely different construction.

Mr. Beuhne is entirely correct in saying that we can not expect a five-horse-power work out of a one-horse-power engine. While it is true the Beuhne uncapping-melter could be manufactured with a much larger heating surface, this would necessarily make it so expensive as to render its cost prohibitive. It was much more practicable to adopt a different construction that would provide the necessary capacity at a moderate cost. To that end there was built a machine on the double-boiler principle, or the principle of the common farina-kettle, making it large enough to take care of a two or three thousand pound extracting in a day during the time the honey was gathered, or some weeks after.

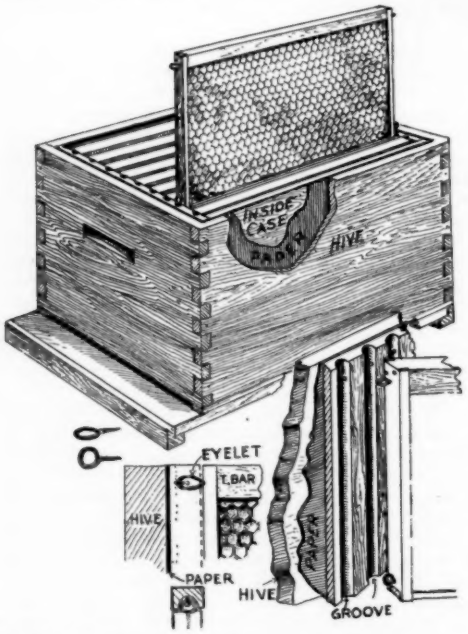
We may say that a large proportion of our honey-producers in this country extract after the season is over, and at a time when the honey is cold. The Beuhne apparatus would not meet this condition except to make it very large.—ED.]

A PROPOLIS-PROOF HIVE.

A New Idea for Frames.

BY A. W. FOREMAN.

I am sure there are many bee-keepers who are looking for a device by means of which a frame can be kept free from propolis so that it may be instantly removed independently of any of the others. The drawing illustrates the frame and



hive that I have used two years with excellent results. I have never found two frames stuck together, nor any frame stuck in the hive. Furthermore, the most careless person could scarcely kill a bee in inserting or removing a frame.

In fitting the hive for this frame I prefer to use a regular ten-frame dovetailed hive, lining it as shown, thus reducing it to a nine-frame hive. This gives, at the same time, a double-walled brood-chamber, which, with heavy building-paper between the two walls of the hive, makes a perfectly satisfactory arrangement for wintering on the summer stands, and adds but little to the cost of the hive. These linings are ⅜ inch thick.

It will be noticed that there are two screw-eyes in the ends of each frame—one near the top-bar and the other near the bottom-bar. These screw-eyes fit into a round groove in the lining at the ends of the hives, and a small nail at the proper height near the top of each groove prevents the frames from sliding down too far. The lower screw-eye is turned vertical while the upper one is horizontal. In this way the lower screw-eye slips past the nail down into the groove, and the upper one rests on it. To reverse the frame, give each of the four screw-eyes a quarter-turn.

By putting the small nail at the lower end of the round groove, and allowing the lower screw-eye to rest on it, a somewhat more simple arrangement would be afforded, as then the faames could be reversed without change. However, there might be a little more danger of killing the bees. If this were done, all four screw-eyes would be turned horizontally.

I am aware that this frame will not satisfy those who think there is an advantage in removing two or more combs at a time, but I believe the majority prefer to remove only one at a time. Indeed, I often think that all the arguments I have seen offered in favor of removing a group of frames together rather than one a time are but unconscious attempts to make oneself satisfied with what he does not know how to improve.

With chaff hives an additional inner lining would not be necessary, as the round groove could be kept in the regular inner wall of the hive proper. In this way, full-length frames could be used. We make hives that use frames just 16 inches long, inside measurement.

Whitehall, Ill.

[There are two serious objections to this method of spacing frames. 1. It requires either a change of dimensions of the hive or of the frames themselves. Odd-sized hives are a nuisance, and always entail an added first cost. 2. Our correspondent does not anticipate the most serious objection to this form of spacing—namely, that it will not allow of moving the frames laterally back and forth *inside* of the hive. If it is desirable to split the brood-nest, and shove the two halves apart, it would require the handling in the case of a hive above shown, of every *individual frame*, and then putting it down into its desired position one by one. This would entail an enormous waste of time.

This scheme of spacing devices in the hive has been invented over and over again—has been made the subject of numerous patents, both in Europe and in this country; but so far as we know there are very few who use it, and most of these give it up sooner or later. If our correspondent wants frames that can not be propolized together he should use staples or nail spacers, or some general form of metal spacer that is made *part* and *parcel* of the *frame itself*. Any spacing arrange-

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ment that requires grooves, notched rabbets, or some spacing arrangement *in the hive itself*, is a serious mistake, and any beginner should go slow before he adopts any thing of that sort. The fact that it has been so generally abandoned where it has been tried should discourage any advocate of the principle from going into it extensively.—ED.]

PROFITS FROM BEES.

52 Colonies Supported a Family of Six Children.

BY M. E. PRUITT.

We have a hundred colonies, and run them for both extracted and comb honey. We have the three-banded Italians and Carniolans. We like the Carniolans a little better, as they seem to be gentler.

I notice that some have inquired whether bees pay. Well, I should say they do pay! Last year, with the profits from our bees we bought a $75.00 buggy, a $65.00 Singer sewing machine, a $27.00 bicycle, and we supported and clothed ourselves and six children. Besides this, we paid two or three outstanding debts. All this was done with the profits from only 52 colonies.

This is a splendid locality for bees. Our honey-flow lasts from March to October almost continuously. We have catclaw, mesquite, castor bean, live oak, and sumac. There are a few other plants, which do not seem to amount to very much so far as surplus honey is concerned, such as the wild plum, the cactus, the elm, and others.

Our colonies winter on their summer stands. We aim to contract the widest entrances, although we sometimes neglect to do it. So far this spring we have found no queenless colonies, and only one that is rather weak out of 108 colonies that went into winter quarters. We do no feeding.

UNCAPPING-KNIVES.

I have been very much interested in the discussion of uncapping, and should like to give my experience, notwithstanding the fact that I have had but two years' experience. I first began with the upward stroke, but this year tried cutting down, and would not go back to the old way for any thing. After a little practice I found that I could hold the frames steadier, and that I had more power in my wrist, since the weight of the knife is a help in cutting downward, rather than a hindrance, as is the case when the upward stroke is used. Then with the downward stroke the cappings roll off free from the uncapped surface of the comb.

I want a two-edged knife, and I always have it hot and sharp. The knife should be neither too hot nor lukewarm; the former leaves a thin scum of wax over the cells, and the latter undoubtedly is worse than a cold knife. I have had no experience with a thin knife; but I think I should prefer the thick one because it is heavier, and requires less force to push it down under the cappings.

I like to cut deep — that is, level with the top-bar. I get more of the wax, which is quite an item at the end of the season, and no honey is sacrificed. The next time the combs are uncapped, the knife goes practically to the same depth, so that only the new wax is cut off, leaving the stout old comb in the middle untouched.

Vigo, Texas.

BUCKWHEAT AS AN EARLY SUMMER CROP.

How it May be Plowed Under to Advantage; Growing Alsike with Buckwheat.

BY H. B. HARRINGTON.

Many of our bee-keepers are farmers with medium or small-sized farms. It is the owners of these we are trying to show that buckwheat is a good paying crop besides giving a nice lot of honey at just the time when wild flowers are lacking. We have reckoned the price of the seed at the price of chicken or cow feed, because we never see buckwheat quoted in the market reports. Buckwheat flour is always high—far out of proportion to the price paid or offered by the millers or grain-buyers, and the point is, feed it to the stock before we allow the millers to beat us out of half of its actual value.

As to the land to sow to buckwheat this year. We have always raised our very best crops when we turned under wheat stubble. One can set his wheat in rows, and commence to plow as soon as the wheat is cut; then finish up where the wheat stood, as soon as it is dry enough to draw.

Last fall was a bad time to put in wheat. Much of it looks bad now, and the grass seeding is almost worthless. We do not need to lose the use of our land, but raise a big crop of buckwheat and honey, both of which will be extra and a clear gain.

When we drill our buckwheat in July we sow about five pounds of alsike clover per acre, when we are booked for a fine crop of clover honey for next year. Drill the wheat or rye right on the buckwheat stubble without fitting; buckwheat leaves the ground so mellow that it is in the best possible condition that it can be for the fall crop.

In drilling the wheat some of the alsike clover may be killed; but if it rains soon there will be very little lost, and with a five-pound seeding there will be enough left any way.

In this section the season is late, and many fields that farmers intended for oats this spring are not sown.

Now, instead of raising a poor crop of late oats why not raise a much-better paying crop of buckwheat? The oats will leave the land hard and soggy, and in poor condition for fall wheat, while the buckwheat leaves the land light and mellow, and in the best possible summer fallow.

About the 15th of May, as soon as we can escape the frost we drill in buckwheat with a little fertilizer to make it boom. In doing this we stand a show of getting quite a little honey from this first crop; but the main object is to get the very best coat of natural fertilizer; then in July we plow this crop under and sow a second crop to harvest for the grain.

Try this on a thin worn-out piece of land, then take a good laugh to see how you have helped nature reclaim the waste places. Seed rather heavily for a crop to plow under.

Medina, Ohio.

HEADS OF GRAIN

FROM DIFFERENT FIELDS

DO THE WORKERS KILL QUEENS, OR DO THE QUEENS KILL EACH OTHER? TWO QUEENS TO THE HIVE BY CLIPPING THEIR STINGS AND ONE OF THEIR MANDIBLES; SOME INTERESTING EXPERIMENTS.

For several seasons I have experimented with queens to try to find the exact relation that exists between the queens and the workers, in order to get some light on the disputed question as to the control of the hive, or brood-nest at least.

My interest was aroused at one time when I found two young queens that were mated and laying peaceably in one hive. From some of their larvæ I reared some young queens, thinking possibly I might be able to produce some queens that would not be hostile to each other. This was not the case, however, for the virgins fought until but one was left.

On the next batch of young queens I caged the cells, and then later clipped the stings of the virgins, placing a number of these stingless virgins in one hive. I soon found that they kept nibbling at each other's wings close to the thorax in a vain attempt to sting.

On the next lot of queens I clipped the stings and also the horny end of one mandible of each queen, and then placed them together. Such quarreling and fighting I never saw. They wore each other's thorax shiny in their attempts at fighting, and it made the bees of the colony very cross also. However, I succeeded in getting several of these successfully mated; and when they commenced laying they took no further notice of each other, and went along about their work very contentedly. The bees, also, in the colonies became quieter. I had four colonies, each of which had from two to five queens with clipped mandibles and stings. The laying of these queens resembled that of laying workers, although there were no eggs in the queen-cells.

When the harvest was over, and drones were being killed, all surplus queens shared the fate of the drones. The surplus queens were taken to be as useless as drones. The hives were left well stocked with honey too. Under certain conditions, therefore, I believe that Dr. Schroeder is right. See page 987, August 15, 1908.

Oxnard, Cal. H. S. PHILBROOK.

[Such experiments as are here recorded are interesting and valuable. The results show that *at the start* the queen seeks to accomplish the "eliminating"—the stronger, or the one that gets the "best hold," killing the other. It is also shown that, after the harvest, the bees will reduce the queen force down to one. We had any amount of proof given on this point last season.—ED.]

EIGHT-FRAME HIVES LARGE ENOUGH IF THEY ARE TIERED UP.

I beg to differ with Dr. Miller, in Stray Straws for Dec. 15, where he says an eight-frame hive is too small for extracted honey. I think it depends on the management, to a great extent. I find the ten-frame hive too heavy to handle, and prefer the eight-frame on that account, if for no other. I do not give my bees very close attention, and my crop this year was 4350 lbs., which is not a bad average for 28 colonies. I have taken 1150 lbs. from six colonies in eight-frame hives without giving them *very close* attention. Of course, I tier up and give plenty of room in that way, and seem to get as good results as I could possibly get with ten-frame hives, especially as we have some good bee-keepers in this county with ten-frame hives who do no better than I do with my small hives. Of course, I never recommend the ten-frame hive to the average farmer bee-keeper, because of the fact that they seldom tier up, and so do not give the bees room enough. J. T. SHACKLEFORD.

Napton, Mo., Dec. 20.

[There is no doubt that extracted honey can be produced very satisfactorily in an eight-frame hive. In fact, the man who objects to lifting, and especially the women-folks who can not or ought not to lift, had better adopt the eight-frame rather than the ten-frame size of hive. Indeed, it is a question whether such people should not go further and adopt a shallower brood-nest like the Danzenbaker, or one shallower still, of the divisible-brood-chamber type. That extracted honey can be produced in divisible-brood-chamber hives economically has been proved time and again.—ED.]

HOW TO LET THE BEES SATISFY THEIR DESIRE TO SWARM WITHOUT MAKING INCREASE.

Wouldn't it be nice if we could so manage our bees as to allow them to satisfy their desire to swarm, and yet have no new combs drawn out or built, or have a lot of surplus combs left on hand at the close of the season, as is the case with "shaken" swarms, or the colony divided, as happens where natural swarming is practiced? In either case much time and labor are lost on the part of the bees, and that, too, at a time when we can least afford it during the whole season. The building of these new combs, and all other work related to it, is done at the expense of the honey crop. The amount of surplus honey secured during the season depends largely on the way the colonies are handled at this time.

I have a plan I have practiced with good results for many years, and one that does away with extra hives, frames, foundation, etc., but some one must be on hand when they swarm. This however, is also true of natural swarming; and where the colonies are shaken the bee-keeper must be on hand several days before the swarm issues.

Secure a few clean boxes, large enough to hold about a bushel. Now take the bottom out and make an entrance in one end for bees. Pour a little melted wax along the inside of the cover. Provide a bottom-board as large as or a little larger than the box. When the colony swarms, hive it in one of these boxes prepared in advance, and place the swarm right close alongside of the old colony, facing the same direction. The bees will start to build combs from the wax along the cover, and will not be likely to swarm out. Do nothing more to the swarm or the old colony for 48 hours, after which time cut every queen-cell out of the old colony and shake the swarm

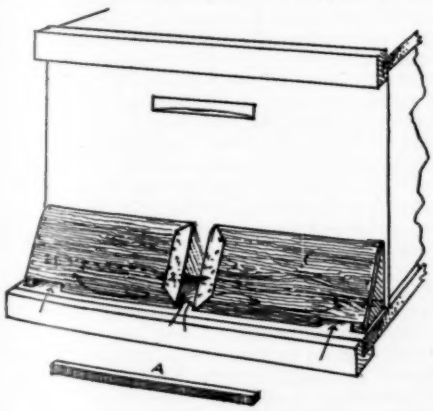
in front of the entrance, and let the bees run in. There should be plenty of storing room provided, as well as ample ventilation. This permits the colony to satisfy its desire to swarm, and as a result the bees will go to work, after being returned, with wonderful energy. The plan is not new, but has worked well for me. I have not had a colony offer to swarm when thus treated, and yet it is probable that the plan might prove an entire failure in some localities. The advantages of the plan are that the colony is kept together; is storing surplus honey instead of building frames of comb; no extra hives, frames, foundation, etc., needed to take care of the swarms, and a great deal more honey per colony. Do not allow more than mere starters in the boxes, as we do not want the queen to do any laying while the swarm occupies them. When the bees draw the starters out into comb, such combs should be cut out. GRANT STANLEY.

Nisbet, Pa.

[The method described looks as if it would work.—ED.]

ENTRANCE-PROTECTOR TO PREVENT ROBBING.

Last summer I made some entrance-attachments to prevent robbing, and so far they have worked very well. When I find robbing going on I try to find out which colony or colonies are the robbers by the use of flour. Toward evening I shut the robbed colonies and also those that did the robbing, in a cool cellar where it is dark. I keep them there for two or three days and then take them out and put these devices, as shown in



the engraving, over the entrances. I arrange these so that all openings into the hives are closed except the space between the two halves of the attachment. I leave them in this way for two or three days; and when every thing is quiet again, I gradually draw apart the two halves of the attachment. In the case of the weak colonies that were being robbed, I leave the opening narrow until they are strong again.

When I found that this device was working so well I put them on all of my colonies in order to prevent all robbing. During the summer and fall I occasionally saw robber bees inside the boards, but they were quickly chased out.

I also use these as protectors from the snow and ice during winter. I use springs to keep them in place so that the wind can not blow them away. H. J. BLICKENSDERFER.

Shanesville, Ohio.

IS THE PRICE OF HONEY TOO HIGH IN ARIZONA?

On page 101 of the *American Bee Journal* a subscriber from Arizona says that honey is sold at too high a price, and he believes also that many bee-keepers feed their colonies sugar, and swindle the people with their sugar-fed honey. Now, I live in Arizona, and I have never yet been paid too much for my honey. I believe that, as bee-keepers, we ought to try to keep the price of honey up.

In regard to sugar-fed honey, I will say that I am quite sure this party must must have seen some bee-keeper feeding sugar syrup for stimulative purposes in the spring, and supposed that he was feeding for honey. I do not take much stock in this statement. The honey from catclaw in this State candies very quickly, and it is possible that this is what gave the impression. From actual experience in feeding sugar for the purpose of getting the bees to make comb honey, it has been found that $7.50 worth of sugar produced only $2 50 worth of honey.

In this locality the bees fly nearly every day in the year. For honey-plants we have catclaw, paloverde, mesquite, alfilaria, and many other plants, the names of which I do not know. The spring honey-flow is water-white until July, and then the honey is light amber. In the fall, when we get fall rains, there is a small yellow flower which is our largest yielder. It produces dark amber honey of good flavor. This honey was never known to candy.

Tucson, Ariz. GUS MARVIN.

[We doubt if there is much sugar-fed honey on the market. We know of parties who have tried it, but have given it up because it did not pay. If this is true there will not be much of this kind of comb honey on the market.—ED.]

AUTOMATIC UNCAPPING-MACHINES; WILL THEIR USE SAVE LABOR?

Uncapping-machines, or decappers, if you choose to call them so, seem to be trying to struggle into recognition. But, as shown by the statements in the editorials, machines for uncapping are not new. Almost as far back as the practice of extracting honey goes, it is found that the idea of making a machine to uncap existed.

Knowing the above facts the question naturally arises, "Why has not a machine been invented?" Surely the problem is not difficult. The world had to wait until a man was produced who had a mind great enough to invent a machine that was capable of setting type; but the mere problem of inventing a machine to slice the cappings of a frame of honey is one that any machinist, who is worthy of the name, should be able to make in a week or so

The problem is not the difficulty in producing the machine; but would such be of any practical use to bee-keepers?

There are some kinds of work in this world that time and experience have shown can be best done by hand, such as husking corn in the field, picking cotton, and milking cows. In Washing-

ton there are hundreds of models and drawings of machines of this nature, and the machines are in many cases capable of doing the work for which they are intended, and fulfill the inventors' expectations; but the trouble is, the task which they perform is one where a machine is not necessary.

And now perhaps it would be well to examine the subject of uncapping honey, and see if it belongs to the above class. It will not be necessary to bring in the question as to whether a machine could be invented that would adapt itself to all the styles of frames and kinds of combs—one that could uncap combs that are thin, fat, uneven, or damaged—but take it for granted that it will do all of this. In examining the proposition we find, first, that there will have to be a man to take care of the machine, for it is plain that the machine would be unable to pick frames out of the super, uncap them, and deliver them into the baskets of the extractor, so that the only advantage in it would be that it would cut the cappings; and as the average person can, with a little practice, learn to uncap combs as fast as an extractor will handle them, what would be gained by having the machine? LESLIE BURR.

Valparaiso, Ind.

BULK COMB HONEY MORE PROFITABLE THAN SECTION HONEY; A REPORT ON THE NEW WIRE QUEEN-EXCLUDERS.

I have learned how to produce a crop of honey and get a surplus of 100 lbs. per colony as easily as I formerly got 20. Last year my best colony made about 175 lbs. in a ten-frame dovetailed hive. This hive, in my estimation, is better than either the eight-frame dovetailed or the Danzenbaker. I produce chunk honey in shallow Danzenbaker frames, as these frames are warmer than the shallow Hoffman frames, and this is quite an advantage, especially where the supers are put on early. I also produce some comb honey in Danzenbaker sections, but there is about as much demand for the chunk honey as for the comb honey in sections, and, besides, this chunk honey (bulk comb honey) can be produced with much less swarming, and I think I can get more honey too.

I use a good many of the wood-wire honey-boards, and I think they are excellent. I no longer use the zinc excluders, and never did use them to any great extent; but as soon as I saw the wire excluders I thought they would be just what I wanted. I do not see how they could injure the wings of bees, and yet only the undersized queens can get through them.

Mt. Sterling, Ky. J. SMITH HURT.

CHILLED BEES REVIVE ON FIRST WARM DAY; STORM-DOORS AN OBSTRUCTION.

My bees, one colony only, as I started in last summer, were wintered on the summer stand. The hive is protected with a home-made case of inch rough boards, and packed tight with hay. The entrance is protected with the A. J. Halter "storm-door." Saturday, March 27, was a warm day, with little wind but bright sunshine, and the bees were enjoying a flight. Some 50 that had dropped down on some ice near the hive, and were apparently lifeless, I picked up one by one and put on top of the case. All but three of these revived, carefully groomed themselves and each other, and returned to the hive.

I noticed that some of the bees, as they attempted to go in through the storm-door, where the openings were crowded, dropped down into the grass and apparently died.

Sunday was a cool day, with snow and rain until 2 P.M., and no sun until 5 P.M. Monday was bright and sunny, with a cold strong wind. The bees which dropped on Saturday were reviving, and all had come to life, and gone in, with the exception of a dozen or two.

I think the storm door was a hindrance to the bees getting in and out; and *at this time of year*, by breaking up the air currents it may make the hives damp. The dead bees, which I raked out during the cold weather, showed no signs of dampness, but those I raked out about a week ago were not only damp but in some cases moldy.

P. W. RICHARDS.

Mast Yard, N. H., March 29.

SPLINTS BADLY GNAWED; FOUNDATION PRESS MADE OF ARTIFICIAL STONE NOT A SUCCESS.

In a previous number you ask for reports on splints. I used about 2000 last summer during the best white-clover flow I ever had, and they were an entire failure I did not use them with split bottom-bars, as Dr. Miller does, but I drilled six holes in the bottom-bar and stuck them through clear up to the top-bar while hot from the wax, so they imbedded nicely. The foundation came within an inch of the bottom-bar. Almost every splint, half up from the bottom-bar, was chewed up and removed, so no more splints for me. Wires are perfectly satisfactory.

Two years ago there was advertised in the bee journals a foundation-press made of artificial stone. Having foul brood around here I thought it would be a fine thing to have, so I sent for one a year ago. Each face of the press had a seam running lengthwise, very rough, and I worked hard a week, but never managed to remove a whole sheet. It would stick on one of the seams, and tear. At the corners of each side where the hinges were, the foundation had to be ⅛ inch thick if it got the imprint from the faces of the press.

Well, I managed to piece together enough for 20 frames in a week's work, and hived a couple of swarms on them; and, imagine my surprise, when inspected a month later, the nicest slabs of drone comb imaginable, and I had to cut out half of the combs. SWAN ANDERSON.

Chesterton, Ind.

[We have written to our advertiser to ascertain the cause of the failure of his press made of artificial stone or cement. Presses were made years ago of plaster of Paris. One or two claimed to work them successfully; but in the hands of the average person they were a failure.—ED.]

STORM-DOORS TRIED AND DISCARDED.

I have tried the so-called storm-doors for entrances. I watched the bees when they were out, and never saw one go in again; so I took away the boards, closed the entrance to a small space, and left the boards in front of the rest to shed the rain, as it always comes from the south here.

Laurel, Ore. MRS SARAH PARR.

OUR HOMES

BY A. I. ROOT

And Abram said unto Lot, Let there be no strife, I pray thee, between me and thee, and between my herdman and thy herdman, for WE BE BRETHREN.—GEN. 13:8.

When I was ten years old I was in the habit of making frequent trips on foot from my boyhood home to the home of my grandfather, on my mother's side. Grandfather's place was two miles and a half from our home, and so it was quite a walk for a ten-year-old boy. But there were many attractions at grandfather's farm. For one thing he was a great lover of fruit of all kinds; and when he first made a settlement in the wilderness he planted apples, pears, peaches, plums, cherries, and almost every kind of fruit that could be had at that early day, so that, by the time I was ten years old, there was always an abundance of fruit. He had a whole peach-orchard on the summit of a great hill on the farm, and other fruit-trees scattered here and there all over the premises. As there was a good market in the neighboring town of Akron, Summit Co., O., which was then, as now, a growing place, he did well with his fruit, besides furnishing a great lot of his grandchildren all they could consume, and carry home, for that matter. Well, on one of these visits I remember distinctly picking up a new agricultural paper just started. It was *Moore's Rural New-Yorker*. At that time there were not many periodicals that would attract the attention of a ten-year-old boy. But I took a great fancy to that new agricultural periodical. There were bright pictures and vivacious stories in it about farming, and in a little time it began to be understood that those papers were to be saved for my regular visits, if not as often as once a week, then once in two or three weeks. That was almost sixty years ago; but I have kept track of *Moore's Rural New-Yorker*, and have read it more or less ever since. Very likely there are other agricultural papers just as good; but it was, perhaps, owing very largely to the above circumstance that I have urged everybody who loves gardening and agriculture to take the *Rural*.

My natural tendency toward agriculture, especially gardening on small areas, has induced me to keep in touch more or less with all of our agricultural periodicals. I have seen many of them start, and have been delighted to watch their growth, especially when it was a good natural healthy growth; and I have rejoiced to know that but very few of them that have been started with a good man or men back of them have died from lack of patronage. Just now I have space to speak of only one other agricultural paper, the *Country Gentleman*. I can not remember when I first got hold of it, but its title attracted me at once. All along in years past there has been a tendency on the part of a certain class of town or city people to look down on the farming community. I remember once hearing the foreman of a machine-shop, while scoring some men for a blunder they had made, say something like this:

"You are only a —— lot of farmers, any way."

The blank was filled out with an oath. I felt the sting, and I feel if yet when I hear any thing of that kind. It is true there are some people who follow farming who are stupid, dull, and ignorant; but, thank God, there are thousands of others who are not only bright and capable, but manly and honest, and they will save the world in spite of the iniquity in our great cities if they will only arise in their might and use their privileges. With this in mind, you may be sure I fell in love with the title of this other, the *Country Gentleman*. I do not know how many years I have been reading that periodical. I do know, however, that I was so much taken up with it that I sent for their "Complete Library of Rural Affairs" It is a library of beautiful bound books that can well grace the home of any farmer or anybody else. It contains an accumulation of valuable facts and illustrations taken from the *Country Gentleman* for about fifty years. This journal is rather high-toned, and is sometimes inclined to be a little aristocratic; but, taking it all together, I love and prize it. I have said it before, and I say it again, may God be praised that we have at least one *Country Gentleman*. That paper and the *Rural New-Yorker* can be found almost any time lying side by side on my open secretary. But I have been pained for some time back to note the jarring between these two periodicals, and I thought of writing a protest to the two editors; but before I got around to it I was shocked and greatly pained by finding the following in a recent *Rural*:

December 18 I subscribed for the *Rural New-Yorker* through the *Country Gentleman*, as has been my custom for some time. I don't know whether I am entitled to the book, "Nell Beverly, Farmer," or not. JOHN DAWES.

The above was written last Christmas. We have been trying ever since to get the remittance for Mr. Dawes, but so far have failed. It is only a repetition of the experience we are having right along; and because of this petty and deliberate annoyance to our subscribers, we must again announce that the *Country Gentleman* and its agents have no authority to represent the *Rural New-Yorker*, or to accept money for it, and hereby forbid them to do so. No further subscriptions will be accepted from them under any circumstances.

One reason why I felt troubled when reading the above was because I felt pretty sure the *Country Gentleman* would reply; and, judging from past experience, I expected the reply would be still more uncourteous and ungentlemanly than the one in the *Rural*. Here it is:

MORE LYING.—The mendacious *Rural New-Yorker* is again snarling at the heels of the *Country Gentleman* and in a manner more contemptible, if possible, than its persistent shrieking last year of the falsehood that we had defended the Dawley cattle transactions. It says that we took a subscription for that paper and appropriated the money instead of remitting it, and that they have been trying in vain since Christmas to collect it! It may be worth while to add, in view of the same paper's recent attack on the Buffalo Fertilizer Company, that, before making it, Mr. Collingwood or his associates strained every nerve to secure the advertising of that company, by circulars, signed letters, and personal visits—but unsuccessfully.

I suppose the greater part of our readers will look at this without any bias toward either periodical. They will feel as I do, that it is a sad thing for these two great home papers, especially papers that go into the farm home, to permit such an example to go out before the world. Let us now go back to our text.

Abram and Lot were prospering, and each had quite a lot of followers, and there was some trouble about the pasture for their cattle. We do not know very much about Lot; but Abram, the old patriarch (perhaps not so very old just then, God bless his memory) was wise enough

and big-hearted enough to see and comprehend. There was a trifling difficulty between the herdmen, but there was no excuse at all for a quarrel between relatives. He says, "Let there be no strife," and then he gives as a reason that glorious text that I hope has already settled many a difficulty—"For we be brethren."

Now, dear brethren of the *Rural* and of the *Country Gentleman*, I am sure you will excuse me for having taken the liberty of taking up this matter in this way. In your great work of elevating and educating and protecting your rural readers, you surely ought to recognize the great importance of feeling toward each other as Abram expressed it—"We be brethren." Even if you are not related by ties of flesh and blood, does not your calling make you in one sense brethren before the people? Think of the example you set, particularly before the rising generation. As I understand it, the trouble started because the *Country Gentleman* was somewhat slow or backward about reporting subscriptions they had received for the *Rural*. Now, in publishing our own periodical we have had similar trials, and I will tell you what I have done. When I was satisfied that some innocent party had given his subscription money to somebody who did not or would not send it forward, I have sent the journal along and borne the loss myself; and if we advertised to furnish a book or something of that sort to those who paid up all arrears I have also sent the book. I would send to John Dawes his book, Nell Beverly, and take my chances on getting the money. Surely such a great periodical would get around to it and hand it over sooner or later. Let us consider the matter a little.

Every successful journal nowadays does lots of advertising in order to get new subscribers. They sometimes make almost reckless offers in order to get a new subscriber started. In view of this, solely from a money point of view if for no other, I would see that every man has his journal, at least from one of you, if he pays his money for it. We have lost a little by so doing, but not much. Another thing, dear editor of the *Rural*, it does not *pay* to have a quarrel on our hands with anybody, much less with somebody who has influence. The *Country Gentleman* has friends, and those who will side with it, even if it is wrong, just as every other periodical and almost every person has his particular friends who will stand by him, right or wrong.

Now, if my good friend Collingwood will excuse me for the above I wish to say a word to friend Tucker, of the *Country Gentleman*. Dear brother, did you consider, when you permitted that word to get into your periodical, that the word "lie" is rather harsh language? I often think that, if people would go to the dictionary and see what it says about lying, they would be more careful about using such an "ugly word" as President Roosevelt called it. Your reply would indicate that there has been some previous trouble back of it. But has not that been settled and ended? Surely no one who knows Mr. Collingwood, or who has read the *Rural*, would believe for an *instant* that he is guilty of falsifying, or that he is guilty of any thing unfair or ungentlemanly, unless, indeed, it was in writing that editorial I have copied, to go into the *Rural*. Of course, this is not the first time that periodicals of great circulation have come out before the world with their differences, and called each other names; and, if I am correct, it is more the fashion nowadays than it was a few years ago to be courteous and gentlemanly, especially toward those who occupy prominent positions such as teachers, preachers, and editors. You can fight evil without fighting the persons who are, perhaps, making a mistake. My mother used to say that we should love the sinner while we hate the sins of which he may be guilty; and that same old mother taught me a nursery rhyme which I can remember her saying to me over and over again very slowly until I could remember the hard words. Now, do not laugh and call me old-fashioned if I put in that little nursery rhyme here. I can remember how slowly and patiently she said the words over, one line at a time, until I could repeat the whole. If my memory serves me right it goes this way:

Let dogs delight to bark and bite,
For God hath made them so;
Let bears and lions growl and fight,
For 'tis their nature too.
But, children, you should never let
Your angry passions rise;
Your little hands were never made
To tear each other's eyes.

Bless the memory of good old Dr. Watts! Somebody has said we are all children of a larger growth; and I wonder if it would not be a good thing for all of us to go back occasionally to the time when we sat at our mother's knee listening to her wise counsel adapted to our infantile comprehension. God bless the mothers.

Now, I do not mean to say that there is no occasion for downright fighting and warfare. God forbid, however, that war should break out between friends and neighbors, or those who are leaders of the people. I will tell you where I believe in *war*, and I should like to see it come right now, and I would be glad to help it along. If the remnant of my poor life will count in this war I am ready to die as a martyr. I mean war on the whisky-bottle—especially those planned for schoolboys, and war on the cigarette business. If anybody really deserves imprisonment for life it is the man who will push the cigarette traffic just for the boys' nickels, without any regard to the wrecks and ruin that ensue. I can not believe that more wars are necessary between great nations; and I can not think it right that hard-working people should be taxed in order that more millions may be invested in men-of-war. The Cleveland *Plain Dealer* of April 30 has the following piece of sarcasm in regard to the matter:

The idea of compelling the world to be peaceful by threatening to shoot it full of holes if it offers objections to the beneficent program, is, perhaps, not exactly new.

And here is another in about the same line:

Let the public be not beguiled into supporting an organization whose slogan is, "Keep the commandments or we will break them over your head."

Rutledge, the great temperance orator, told a little story to illustrate the folly of a clash between the Prohibitionists and the Anti-saloon workers. Even if I have told it before, it will bear repeating.

A gentleman who loves fine poultry, but who did not believe in cock-fighting, had two very handsome game cocks. His colored man was so sure they could whip every thing in that region

that he kept begging permission to take them to a cock-fight. The owner finally consented, with the understanding that his man did it entirely on his own responsibility. In the course of time the colored man returned, very much chopfallen. The two beautiful game birds were covered with blood. They were alive, but that was just about all. The owner asked:

"Why, 'Rastus, were you so foolish as to go and put those two roosters in the same box?"

'Rastus, with his eyes full of tears, admitted he did, and blubbered out: "Why, who'd 'a supposed dem two fool chickens would go to fightin' each odder when dey's bofe on our side?"

Now forgive me if my illustration is a poor one; but does not the great outside world, the readers of both kinds of periodicals under consideration, feel within themselves, even if they do not feel like saying so out loud, "Who would have supposed that these two great agricultural papers which are fighting, and have been for years past, the wolves and thieves who are constantly preying on the farmer and his best interests—that these two great periodicals which are both on one side—should so far forget themselves as to get to giving murderous clips at each other?" Now excuse me in closing for a little paraphrase from the words of Paul:

"The editor and publisher of a great home paper should not behave himself unseemly; he should not seek his own, nor be easily provoked, nor think evil; he should rejoice not in iniquity, but rejoice in the truth; he should bear all things, believe all things, hope all things, and endure all things."

OUR SCHOOLBOYS AND THE CIGARETTE BUSINESS.

After I finished my Home paper in the last issue I was thanking God that the little bottles of whisky were no longer paraded in sight of our innocent boys as they were less than twenty years ago; yet there is one other *terrible* thing now going on in our State of Ohio and in other States. I refer to the permitting of certain human wretches to go about our land distributing cigarettes or making it possible for our boys to get hold of them. The testimony from our doctors, teachers, ministers of the gospel, and good men and women everywhere, is universally and entirely against the cigarette. Why, then, should this thing be permitted to continue? Simply because these devils in human form want the nickels that our small boys may happen to have. There is no other motive in the world. They want the money, and they do not care where it comes from. If they would only ask grown men, able to judge the cigarette itself, it would not be so bad.

Just a few days ago I was greatly enjoying seeing a well-digger put down Mr. Rood's artesian well. One day the boy who had been running the engine, and acting as general helper in handling the tools, could not come. In his place was a nice bright-looking spindling little fellow, perhaps sixteen or seventeen years old. When I first caught sight of him I felt that he was entirely too young and slender to handle the great heavy tools. He was just at the age where a boy is generally making rapid growth. But he had lots of energy, and seemed anxious to let folks know that, even if he was not a man in size and strength, he was *almost* one. By the way, did you ever see somebody trying to make a young colt carry a bigger load than it ought to carry? When I see any thing of that kind it makes my blood boil. It is a shame to overload or overtask a colt or any other young animal; but, dear me! what is a colt, or all the colts in the world, for that matter, compared to one boy with an immortal soul? When I saw that bright young boyish face, and that boyish form lifting a heavy sand-pump as it came out of the well, I felt like making a protest, but he said he did not mind it. Now, while this boy was doing work beyond his strength, and, I fear, doing something that might hinder his physical growth, I saw him, when he got a little respite, smoking a cigarette. I do not know *where* he got them nor *how* he got them; but yet it is true that in that dry county, Manatee, where there have never been saloons, there is somebody who sells or gives away cigarettes. May God hasten the day when our good men and women shall arise in their might, and do as they have done with the whisky business, and say as Paul said to the sorcerer, "O full of all subtlety and all mischief! thou child of the devil, thou enemy of all righteousness! wilt thou not cease to pervert the right ways of the Lord?" Well, friends, how does it come, while most people are against it, that this cigarette traffic still keeps on? It comes about because these cowardly enemies of all that is good have succeeded in getting somebody into office who will protect them in their hellish traffic.

Just now the principal leader in the anti-cigarette war is one little woman, I will introduce you to her by giving a brief little letter which she sent me. I will give you the heading of the letter as well as the letter itself:

HEADQUARTERS OF THE
NATIONAL AND CHICAGO ANTI-CIGARETTE LEAGUES.
119 Woman's Temple, Chicago, Ill.

Mr. A. I. Root:—A great anti-tobacco man like you must be in line with our million movement. When you fill out the card would you like to send your ten-dollar fee instead of the dime asked? We are pressing the fight in a number of State legislatures. The situation in Ohio is most encouraging. The work I did last year helped to get things in fine shape. Several States will carry the day this year.

I have just written Mr. Coward, of New York, suggesting that he enlist his great Sunday-school in our One Million Club. I got his name from GLEANINGS.

Why not tell your readers about this effort? Bee-keepers are the salt of the earth, and ought to be with us in force.

Chicago, March 5. LUCY PAGE GASTON,
Superintendent.

Now, brother bee-keepers, what do you think of her closing remarks—that bee-keepers are "the salt of the earth"? May God help us to make it true.

Now to wind up with something encouraging, permit me to give you the closing sentence of a recently enacted Ohio law:

SECTION 4. Any person or persons, firm, or any officer of any corporation, who, directly or indirectly, after April 15, 1909, solicits orders for intoxicating liquor in any county or territory where the sale of such liquor as a beverage is prohibited shall be subject to a fine of not less than one hundred and fifty dollars nor more than four hundred dollars for the first offense, and for the second offense not less than four hundred dollars nor more than eight hundred dollars.

Does it not look as if the way of the transgressor really promises to become rather hard in the future?

Now, friends, when we get a similar law in

regard to the cigarette business, we shall have done something worth while. May God help us.

Perhaps I might say I sent Miss Gaston the ten dollars which she asked for. If you wish to send her another ten I will guarantee that it be wisely and carefully used.

THE INIQUITY OF THE CIGARETTE BUSINESS.

Below is a clipping I have taken from the *Union Signal* of April 29. It is taken from a letter from one of our missionaries in China, Catherine L. Stevenson. If it does not make your blood boil after reading it you can not well boast of belonging to—

The land of the free and the home of the brave.

Here is the extract:

The cigarette is the most immediate and deadly foe of the youth of China to-day. It is being imported in vast quantities, and is also being manufactured to a greater or less extent in the empire. I have seen tiny little fellows, apparently not more than three or four years old, walking on the streets puffing cigarettes. Saddest of all, the habit is growing alarmingly among women and girls. The tactics of the American Tobacco Co. in China are such as should call forth the denunciation of every right-minded American citizen. They enter new territory over all the empire, even the smallest villages, and give away to every man, woman, and child whom they meet a package of cigarettes. They have boasted that the Chinese people simply must learn to smoke cigarettes; that they have taken the matter in hand so thoroughly that the people can not escape the habit. The citizens of one small city resented these methods and publicly destroyed the cigarettes. The company appealed promptly to the authorities, and the citizens were punished. Not discouraged, they adopted another method of warfare. They had posters printed setting forth the deleterious effects of the cigarette, saying that they were poisonous, giving, indeed, some of the scientific facts which we give at home, and these posters were placed in conspicuous places about the city. The American Tobacco Co. promptly appealed to the consul for the protection of their sacred vested rights. The consul was weak enough to yield, and a protest was made to the taotai, or local governor. He in turn yielded, and the placards were ordered taken down. Is it not a shame and a disgrace that a company coming from a Western Christian nation will not allow a Chinese city to protect itself? I do not know what methods can be taken at home; but I am earnestly hoping and praying that something may be done to check this arrogant corporation before it shall have totally ruined the Chinese of this generation.

Will somebody please tell me what this American Tobacco Co. is? where located? how can it be reached? We can thank God that the Chinese goverment has concluded to cut off the opium traffic; and if the people of the United States do not rise up in protest against the diabolical work pictured in the above letter we should be heartily ashamed of ourselves if nothing more. Just think of having this tobacco company follow along in the wake of our foreign missionaries who are trying to spread the gospel!

HEALTH NOTES

CORN KING.

While recovering from my fever, nature seemed to call for the ground meat regularly three times a day. Fletcher says, you may remember, eat, if possible, what nature seems to indicate—just that and nothing else. Well, I should have been quite well satisfied with this ground meat and a little bread and butter, or some kind of cereal; but with such a heavy lean-meat diet there is always trouble from constipation.* As my digestion seemed hardly strong enough for raw wheat I used it cooked, chewing it very thoroughly. The craving for meat began gradually to let up; and in looking for something to take its place I got hold of what we call "hulled corn." It seemed to hit the spot, and I ate it with wonderful relish, meal after meal; and, for that matter, I am doing it now—a big dishful. Since Patten's gambling on wheat the price has gone up so much that corn is really cheaper; and I begin to feel that it would be just as well for us as a people, perhaps, to use more corn and less wheat, aside from the matter of economy.

As you may not all understand exactly what I mean by "hulled" corn I will explain. We get it at the groceries, a good-sized can for ten cents. If you take a dozen cans you may get them a little cheaper. The label on the can reads, "Van Camp's Hulled Corn—the kind our grandmothers used to make."

I can remember when our family of seven used to tease mother to give us some hulled corn. We went out to the corncrib and selected some of the very nicest ears.* It was then boiled in a kettle, with a bag of ashes. I think they said hickory or maple ashes were the best. This bag of ashes was necessary to make the hulls slip off when the corn had been boiled sufficiently. To remove the hulls, and at the same time the taste of potash from the ashes, the corn was washed thoroughly in several waters. Notwithstanding this washing, however, enough of the lye remained in the corn to give it a potash flavor; and this flavor was always agreeable to me, and is even yet. The alkali seems to correct any tendency toward acidity in the stomach. This corn put up in cans retains the same alkaline flavor.

The finest beefsteak to be had in the market is what is called "corn-fed" beef; and after having had a good opportunity to judge, I am ready to declare that there is no beef in the world equal to the corn-fed beef. Now, if corn is so good to make beef, why is it not also a good food to make big strong boys and girls, and men and women? This hulled corn is very easily prepared for the table. Just warm it up with a little milk (cream is still better), and put on a little butter, with salt and pepper to season it, and you have a dish fit to set before a king. In fact, corn *is* king over a great part of our land. May God be praised for the luscious, strength-giving, beautiful yellow corn.

Perhaps I might mention that I have found no difficulty in getting this same hulled corn in our Florida home, and away down there it sells at the same price as here—ten cents a can.

Please do not think from what I said that I

* As neither the corn nor wheat, nor both together, seemed to overcome the tendency to constipation after my fever, I took another trip down into the apple-cellar, and discovered about half a bushel of the Paradise Sweet apple. Perhaps you may recall that I mentioned this beautiful apple before. Where they can be kept until April or May I believe I should call them the most delicious apple in the world. These were not at all wilted, but were juicy and tender. I ate four or five of them before going to bed, and they straightened me out without the necessity of drastic drugs or even castor oil; so I think I can go back to my old decision, that not only are nice ripe apples the "best medicine in the world," but they are at the same time God's medicine provided on purpose for the children he loves.

* Please consider that, although getting the corn right from the corn-crib is considerably more work for the good wife, it is, however, cutting out all the profit of the middleman, and it also obviates the necessity of paying for a tin can that is of no value after you use up the contents. This is not only true of hulled corn but of a great variety of breakfast foods and cereals. There is a tremendous saving by making a short cut from the corncrib or granary direct to the dinner-table.

have any spite toward our vegetarian friends. If you can live and be strong and well on a purely vegetable diet, by all means do so. Mrs. Root and I ate but very little meat while in Florida; but we had beautiful fresh fish right at our door once a week or oftener, and, of course, eggs galore.

Later.—It is now May 6, and my craving for lean meat seems to have let up; and my shredded biscuit or puffed wheat, graham bread, Battle Creek graham crackers, or even Terry's raw wheat, seems to be what nature demands. May be you will think I change my mind a good deal; but just now a vegetarian diet seems to be what nature calls for—just about what it has been for several years past. Where one can get along and feel well on a diet of grain and fruit, I do think it is preferable in a good many ways. But make the choice as nearly as you can (as we have it in Fletcherism) for what nature seems to call for, and chew it well, and do not eat too much. With the emphasis that is now being put on the matter of chewing food a long while, I think the world is going to come up to a higher plane, not only in the way of health, but in the way of enjoying our meals and the "daily bread" right from God's own hand.

HIGH-PRESSURE GARDENING

By A. I. Root

HIGH-PRESSURE GARDENING IN MANATEE CO., FLORIDA.

In GLEANINGS for May 1, 1908, I gave you some pictures of celery-growing in Florida, and I told you also, on page 160, Feb. 1, 1908, of the thirty acres equipped with the Skinner sprinkling system. During the past season, fine crops, perhaps finer than were ever grown before, were harvested in Manatee Co., and throughout that region, and shipped north. Owing to a rather severe freeze in the northern part of the State, much better prices were realized by the successful gardeners in our own locality. Lettuce, celery, peppers, beans, cabbage, and almost every thing else, sold at figures that made the growers happy. See the clipping below, from the March issue of the Manatee River *Journal*, of Bradentown, Florida:

CELERY SELLING LIKE HOT CAKES.

The celery-growers are just now the happiest men in all Florida. Their bank accounts are growing by leaps and bounds. The present crop is one of the best ever grown in this section, and the prices are equally good, $2.00 per crate f. o. b. being the standard, with an occasional $2.25 for all fancy stock.

The *Journal* rejoices over the good fortune of these people, who deserve all that is coming to them now, as celery-growing is by no means child's play, but a business which requires work, and lots of it, with the exercise of judgment and common sense in its culture.

Not only were the white people successful, but quite a good many colored men who have small gardens received prices for their shipments that almost took away their breath; and they did not go and get drunk over it either, for Manatee Co. is a dry one, and always has been; and, God helping us, it always will be.

In my own little home, where we have just one acre of ground, there was no frost or freeze to injure the most tender vegetables. Our potatoes were not even touched. There was a *freeze*, however, that did more or less damage to tender stuff in several localities, some of them not more than a quarter of a mile from my own home. Frost and freezes in Southern Florida seem to touch occasionally in spots here and there. I presume air drainage, protection of trees, etc., have much to do with it. My place is on a piece of sloping ground that runs down to the water, and both air and water have a good chance to run down hill. Besides that, all along the north side there is a heavy wild undergrowth quite thickly interspersed with pine-trees. This not only affords protection, but seems to have quite an influence in warding off frost.

Before you get crazy about going to Florida to raise garden-stuff, I want to tell you that there are perhaps a dozen failures to one real success, and I do not know but there are a thousand acres of land, yielding absolutely nothing, unless it is a little pasture, to where there is one acre that is giving a paying crop. There are lots of people who have excellent land and good opportunities, but their gardening is done in such a feeble way that it amounts to nothing, or almost that. Then there are others who come from the North, who, instead of going around among their neighbors, and finding out how the successful men work, just stay at home and try to raise stuff the way they did when they lived in Ohio, perhaps, in their boyhood.

Now, while I tell you what I am going to tell, just keep the above in mind. Before going any further, however, I wish to say a word about the sprinkling system to keep off frost. The men who control the Skinner patent have much to say about the efficiency of this artificial rain, or spraying, to protect from frost; and I supposed until last winter that it was really a success in that line. A neighbor of mine had ten acres under the Skinner overhead sprinkling system. He had a fine crop of peppers, and made a few shipments, getting high prices for his peppers, as his were almost the only ones in the market. Well, we did not have a frost—it was, rather, a freeze. There was a high wind, and I think we had cloudy weather. To protect the peppers he kept his engine running all night, keeping the ground and the plants drenched with water and the air full of spray. Finally it began to get so cold that ice formed on the leaves of the plants, and pretty soon they were bent down under their load of ice. I think the spraying was continued until it warmed up the next day, when the ice melted off. But the plants that were not reached by the sprinklers at all stood the frost very much better. If I remember correctly, some of the plants that were loaded down with ice recovered so as to give part of a crop; but I think the crop was not of much value. I visited a tomato-field under the sprinkling-system at St. Petersburg, Fla., where the report was just about the same. Some of the tomatoes were ripe, and almost ready to gather. They kept them drenched with water until the load of ice pulled them down to the ground; but the tomato-plants that were outside of the reach of the sprinklers were harmed very much less. In both cases, had they not relied on sprinklers to protect from frost they could have gathered quite a valuable lot of peppers and tomatoes also.

Now, I am not prepared to say positively that the sprinkling will not ward off an ordinary frost during a clear night; but during a freeze such as I have described, without any real frost, the sprinkling was a positive *damage* rather than a benefit.

About fourteen years ago I called on one of the first men to start celery-growing in Florida. He had a little piece of black muck swamp down close to the Manatee River, where a little spring came out of the side of a hill. It was almost right in town, and this bog or swampy place had always been an eyesore to the town. He grubbed out the bushes, put in some tiles, and went to growing some celery. When I called on him he was almost too busy getting his little crop off by express to take time to talk. I wrote it up at the time in GLEANINGS, and predicted wonderful possibilities in that direction. Well, a few days ago I met this same man again. He has one of the finest celery-gardens, or farms, perhaps, in Florida. He has been growing celery ever since, and is now one of the most successful celery-growers in that State. He showed me where he had just taken 1000 boxes from a single acre, and the average price received was, I think, a net price of $2.00 a box — $2000 from a single acre! If I am correct he told me he thought the total expense of growing that acre did not very much exceed $100. But he was right there on hand every minute to look after things. As an illustration, many of the celery gardens or swamps, as I think we may call them, in Florida, are so near the level of the ocean that during excessive rains it is a problem to get the rain water out of the way. Hundreds of people have been swamped by these excessive rains, and have thereby lost their crops. Now, Mr. Gates is not that sort of man. This very acre I have been telling you about would have been lost at one time had he not devised a home-made outfit to get water out of his crop. He rigged up something that looked like an overshot waterwheel—a wheel with buckets all around it. Then he arranged this so that it could be made to revolve by means of an ordinary horse-power. By the help of two stout horses he lifted that rain water enough so that it could run away, and he got it off soon enough to save his crop. *There* you have a sample of the enterprise and energy of S. C. Gates, Manatee.

I believe the celery seed is generally sown in August or September. It is grown in plant-beds and then transplanted. Well, our good friend Lattimer, whom I wrote up last May, was foolish enough to put his plant-beds so low down that he had not drainage enough, and so his first lot of plants were drowned out by a heavy rain. Down in Florida, once in a while they have a shower. Up north we think an inch of rainfall in 24 hours is a rather large dose; but, if I am correct, last fall in some places in Florida they had four inches in one night; so you see the gardener who expects to make a success must not only be sure to have water at hand when it is needed, but he must be equally sure of facilities either to *let* the water out of the way or to *get* it out of the way.

One of the wonderful things about a great part of Florida is that artesian wells can be had anywhere by boring deep enough. Just before I left, my neighbor Rood put down a well 490 feet deep on the highest spot on his land. This well, at the time I left, was throwing out a stream of water from a six-inch iron pipe at the rate of something over 100 gallons a minute. Just imagine a stream of water rolling up out of an iron pipe at the rate of something over 100 gallons a minute, the pipe being almost as large as a stovepipe, and the stream spreading out like an umbrella, as clear as crystal, and then running off into the ditches. When I spoke of shutting off the water so as not to have it waste, they informed me that a well is seriously injured by checking the flow. In order to have it keep up and do its best it must be permitted to run full head, and yet the supply never gives out. No matter how many wells you may put down, and not much difference how near together, one well does not seem to have any influence over the surrounding ones. Artesian water is all right for celery; and my opinion is just now, that running water through the furrows gives rather better results than the overhead sprinkling. I have been told that the artesian water is not suitable for the sprinkling system, inasmuch as it fills up and clogs the pipes with something like asbestos. This may not be true in all localities. The sprinkling system I have mentioned got its supply of water by pumping with a gasoline-engine from shallow wells. The artesian water is pretty strongly impregnated with sulphur, especially when it first comes to the surface; and I believe it is considered objectionable for some crops unless it is run in tiles under the ground by sub-irrigation. On Teraceia Island they are successfully making tiles of cement to carry water under ground. Cement pipes are made right in the ditches. In this way there are no overhead pipes nor any thing else in the way of cultivation.

In closing I think I may safely say this: There are wonderful opportunities in Southwest Florida in the way of high-pressure gardening. Men who have the necessary push and judgment to manage things become well-to-do in a short time. A man with little capital, who really loves the work, and who will study the conditions in Florida, can make a living and lay up something for a rainy day. But while this is all true, there are many people who do not do it. The hot weather that we have occasionally sometimes for several days in succession is somewhat enervating, I must admit; but I think we all feel better when we get to work than if we sit down in the shade and get lazy. So far as health is concerned, I believe I have seen fewer sick people in Florida than almost anywhere else, and at the same time great numbers of people go to Florida on account of their health, as I have said before; and it need cost one but very little if any more to live in Florida than in the North, especially if he adopts the simple diet that is now becoming so popular (at least I hope it is) everywhere.

May God be praised for a land like ours that offers such priviliges—especially the privilege of going to a region like Florida when one is getting old, or is ailing, during the severe winters that we have here in the Northern States.

Another near neighbor of mine received just about $1000 for his lettuce on two acres. I do not know how much the "refuse" lettuce is worth for feeding to poultry; but where you have fowls enough to consume it all I would estimate that it is worth at least $10.00 per acre.